ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 1991

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 1991

TUESDAY, FEBRUARY 20, 1990.

NORTH ATLANTIC DIVISION

WITNESSES

BRIG. GEN. GERALD BROWN, DIVISION ENGINEER
JAMES A. DURKAY, ACTING CHIEF, PROGRAMS MANAGEMENT OFFICE
NEIL STUART, DEPUTY CHIEF, PLANNING DIVISION
STUART PIKEN, PLANNING DIVISION

OPENING REMARKS

Mr. BEVILL. Next we have the North Atlantic Division. General Brown, we are pleased to have you and your fine staff with us, and this is your first appearance. I note from your biographical sketch that you have had quite a distinguished career.

We will put it in the record, as is customary with this committee. We are delighted to have you.

[The biographical sketch follows:]

US Army Corps of Engineers
North Atlantic Division
90 Church St.
New York, N.Y.
10007-2979

212/264-7101

Brigadier General Gerald C. Brown
Commander and Division Engineer

Brigadier General Gerald C. Brown is Commander and Division Engineer of the North Atlantic Division, U.S. Army Corps of Engineers, with headquarters in New York City.

The General received his commission upon graduation from the U.S. Military Academy, West Point, NY in 1964. He holds a masters degree in civil engineering from the University of Illinois and has attended the U.S. Army's Command and General Staff College and the Army War College.

General Brown served two tours of duty in Europe, including command of the 82nd Engineer Battalion (1978-80), and two tours in Vietnam with combat engineer units.

The General taught military history at West Point (1974-77), commanded the Corps' Baltimore District (1982-84), and served as Deputy Chief of Staff, Engineer, U.S. Army Training and Doctrine Command, Fort Monroe, VA (1984-86). He served in the Pentagon as military executive to the Under Secretary of the Army (1986-88).

Prior to his current assignment, General Brown studied at Harvard University as a Fellow at the Center for International Affairs. In July 1989, he became Commander and Division Engineer of the North Atlantic Division, U.S. Army Corps of Engineers.

General Brown's decorations include the Legion of Merit (with two oak leaf clusters), the Bronze Star (with three oak leaf clusters), the Meritorious Service Medal (with oak leaf cluster), the Air Medal, the Army Commendation Medal (with oak leaf cluster), the parachutist badge and the ranger tab. He is a registered professional engineer in Texas.

He is a native of Maine and is married to the former Ann Forshey. They have two daughters, Deborah and Suzanne.

The North Atlantic Division oversees District Offices in New York, Philadelphia, Baltimore, and Norfolk with civil works and military construction responsibilities in the northeastern United States and overseas.

Mr. **Bevill**. You may want to introduce your staff.

General **Brown**. Well, thank you very much, Mr. Chairman, Mrs. Boggs. I am very pleased to be here.

INTRODUCTION

I have here with me at the table on my right Mr. James Durkay, Acting Chief of Program Management; on my left is Mr. Neil Stuart, who is my Deputy Chief of Planning. On his left is Mr. Stuart Piken, also from my planning division.

With your permission, Mr. Chairman, I would like to give a short presentation, organized by State. I will submit a more formal statement for the record.

Mr. **Bevill**. Without objection, that will be all right.

PROGRAM SUMMARY

General **Brown**. Our Fiscal Year 1991 budget request is for $271 million. It breaks down into $130 million for Construction, General; $14 million for General Investigations, and $127 million for Operations and Maintenance. These funds will be combined with approximately $50 million that we expect to receive in contributions from local sponsors. Construction funding is the largest category—nearly one-half of our total request. This year, our program is approximately 25 percent larger than last year. It consists primarily of traditional flood control, shoreline protection, and navigation studies and projects.

DIVISION CIVIL WORKS BOUNDARIES

This map shows the division's civil works boundaries by district.

COMMONWEALTH OF VIRGINIA

I would like to begin with our work in Virginia.

NORFOLK HARBOR AND CHANNELS, VA

We have finished the deepening of the Norfolk Harbor outbound channel to 50 feet. Vessels are now taking advantage of the deeper shipping lanes. We have almost finished the design for the next phase, which will deepen the outbound harbor channels to 55 feet.

RICHMOND, VA

We started the construction of the Richmond local flood protection project. The first levee construction contract has been awarded. All local financing is in place, and I expect to complete this work on schedule.

JAMES RIVER NAVIGATION, VA

We are continuing to study the possible widening and deepening of the James River shipping channel into Richmond. The Port Authority may design and construct some minor channel improvements itself. You provided us with funds last year to review the design documents, if in fact the Port Authority decides to have the work done.

BUENA VISTA, VA

We are reviewing the draft Phase I Report for Buena Vista. I expect to approve a levee flood wall plan which meets this town's needs for flood protection. Design is scheduled to begin this spring.

ATLANTIC INTRACOASTAL WATERWAY BRIDGE, VA

We will continue studying the possible modification or replacement of the Route 168 Bridge across the Atlantic Intracoastal Waterway to relieve severe traffic congestion.

TANGIER ISLAND, VA

Finally in Virginia, construction of the stone revetment on the west side of Tangier Island is now complete. This structure protects the island's sewage treatment plant and the airport runway from destruction.

STATE OF WEST VIRGINIA

These are the projects I would like to discuss in West Virginia.

MOOREFIELD AND PETERSBURG, WV

The feasibility reports for both the Moorefield and the Petersburg flood control projects are essentially complete. The tentative recommendations of both include levee construction and other improvements to protect homes and businesses in these communities. We will begin design on the recommended plans as soon as the reports are approved.

DISTRICT OF COLUMBIA AND STATE OF MARYLAND

These are some of our projects in the District of Columbia and Maryland.

ATLANTIC COAST OF MARYLAND

For the Ocean City storm protection project, we have completed design. We will execute the cost-sharing agreement with the State of Maryland next month and start construction this spring.

BALTIMORE HARBOR AND CHANNELS, MD AND VA

We are nearly complete on the deepening of the Baltimore Harbor channels to 50 feet. We expect that the maritime industry will be using these greater project depths later this year.

ANACOSTIA RIVER, MD AND DC

We are conducting a reconnaissance study of the Anacostia River. Flood damages, erosion, restricted navigation and other problems afflict the second river of the Nation's Capital. Many Federal and local agencies are interested in the health of this resource, and we will ask them to join with us in addressing the future use of this river.

STATE OF DELAWARE

Our work in Delaware is extensive.

C&D CANAL BRIDGES, DE AND MD

We will award a contract to repair the St. Georges Bridge across the Chesapeake and Delaware Canal soon. We have reached agreement to repair the bridge while keeping traffic disruption to a level that is acceptable to the state.

DELAWARE COAST PROTECTION

The sand bypassing plant at Indian River Inlet is complete, and it is working. This plant is the first permanent sand bypassing plant in our area.

DELAWARE SHORE PROTECTION STUDIES

Two reconnaissance studies in Delaware will start shortly. The first will address storm protection for Delaware's Atlantic coastline. The second will investigate shoreline erosion problems on both the Delaware and New Jersey sides of the Delaware Bay.

COMMONWEALTH OF PENNSYLVANIA

We have many activities in Pennsylvania.

LOCK HAVEN, PA

The local cooperation agreement for the Lock Haven flood protection project has been approved by both the city and the Army. It will be signed as soon as state and local funds are available, and construction should get underway this year.

WYOMING VALLEY LEVEE RAISING, PA

Design of the Wyoming Valley levee improvement project will continue. This project is not included in the budget for Fiscal Year 1991 because of unresolved issues concerning the project's economics and design. We are reexamining the project's design parameters for the higher levels of protection desired by local interests. As part of the design effort, I intend to use the funds that you provided last year to resolve this concern.

SUSQUEHANNA RIVER BASIN, PA, MD AND NY

Our studies of flood and water supply problems in the Susquehanna River basin continue. These include feasibility studies of storage reallocation at Raystown and Curwensville Lakes, design studies for flood protection in the Lackawanna River basin, and two reconnaissance studies for flood protection on the Juniata River and in the Wyoming Valley.

DELAWARE RIVER PORTS, PA, NJ AND DE

There are several major ports in the three States along the Delaware River. Our comprehensive study of the future needs of these ports is continuing. Next fiscal year, I expect to review a feasibility report on deepening the main shipping channels. We have strong support for this study from local port interests, including an offer of assistance in completing the study.

STATE OF NEW JERSEY

I will now discuss our work in New Jersey.

PASSAIC RIVER BASIN, NJ AND NY

We have started design on the Passaic River Mainstem project, and have established a separate organization within the New York District to manage its work on projects in the Passaic River basin.

Our budget request also includes funds for continuing the design of three other projects in the basin.

NEW JERSEY COASTAL PROJECTS

We have several coastal projects in New Jersey. On the Sandy Hook to Barnegat Inlet project, we have nearly completed design on the Seabright to Ocean Township section, and we are negotiating the cost-sharing agreement with the state. Construction should begin this year. Design continues on the Asbury Park to Manasquan section.

We are constructing the Cape May project. These two pictures show the before and after project conditions for the restoration of the Coast Guard Training Center shoreline. This project is cost shared with the Coast Guard and with the state.

Construction of the new jetty at Barnegat Inlet is well underway and proceeding satisfactorily.

We have our design nearly complete for the Great Egg Harbor Inlet and Peck Beach hurricane protection project. We expect to sign the cost-sharing agreement later this year. Construction should begin this fall.

PORT OF NEW YORK AND NEW JERSEY

We continue to have a lot of work in the Port of New York and New Jersey.

KILL VAN KULL AND NEWARK BAY, NY AND NJ

Construction of the channels leading into Port Newark and Port Elizabeth continues. Dredging is currently underway. The extensive blasting needed to remove rock ledges is more difficult and costly than we anticipated.

NEW YORK HARBOR COLLECTION AND REMOVAL OF DRIFT, NY AND NJ

Drift removal on the Weehawken to Edgewater, and Hoboken shorelines will continue with carryover funds through Fiscal Year 1991. With the funds you provided for Fiscal Year 1990, we are re-evaluating this bistate project to ensure that future work is both economically justified and complies with the administration's budget priorities.

STATE OF NEW YORK

These are the projects that I will discuss in New York.

FIRE ISLAND INLET, NY

We will resume dredging of the Fire Island Inlet and place the sand on the beach at Gilgo State Park to protect Ocean Parkway.

SHINNECOCK INLET, NY

We are negotiating the construction cost-sharing agreement for Shinnecock Inlet with the State of New York. No funds are budgeted to continue this project in fiscal year 1991; however, the funds Congress provided last year will allow us to dredge the dangerous offshore sandbar.

OTHER LONG ISLAND STUDIES AND PROJECTS

Design on the beach restoration project for Coney Island will be completed in Fiscal Year 1991. This project will be a real plus for the New York area, a fitting complement to our recently completed shoreline project at Liberty State Park in New Jersey.

This year, we plan to begin removing the barges lying in Hempstead Harbor. We are continuing our study for storm protection for Long Beach Island.

CONCLUSION

Mr. Chairman, this concludes my presentation. I would be happy to answer any questions.

[The prepared statement of General Brown follows:]

CIVIL WORKS STATUS REPORT
(STATEMENT FOR THE RECORD)

NORTH ATLANTIC DIVISION
US ARMY CORPS OF ENGINEERS
FISCAL YEAR 1991

BRIGADIER GENERAL GERALD C. BROWN
DIVISION ENGINEER
20 February 1990

Mr. Chairman and distinguished members of the sub-committee, I am Brigadier General Gerald C. Brown, Division Engineer of the North Atlantic Division. I am honored to appear before this subcommittee to present the North Atlantic Division's civil works program and our Fiscal Year 1991 budget request.

Mr. James Durkay, Acting Chief of my Programs Management Office, Mr. Neil Stuart, Deputy Chief of Planning, and Mr. Stuart Piken, also from my Planning Division are with me. With your permission, I will submit a statement for the record and present a short oral summary. Since this is my first opportunity to speak before your subcommittee, I will provide my biography for the record.

AREA OF RESPONSIBILITY

The Division boundaries include all or part of 11 states and the District of Columbia. Our four District offices are in the port cities of Norfolk, Baltimore, Philadelphia, and New York. We have water resource activities in five major river basins -- the James, Potomac, Susquehanna, Delaware, and the Hudson. We are also responsible for Corps of Engineers' efforts in the Chesapeake and Delaware Bays and for the Atlantic Coast, from the Virginia- North Carolina border through the coast of Long Island, New York.

POLITICAL BOUNDARY

The North Atlantic Division serves 41 million citizens, represented by thousands of local officials, 88 Members of the House of Representatives, 22 Senators and 11 Governors.

WATER RESOURCE ACTIVITIES

The heavily populated northeast depends on its water resources. Navigation, flood damage prevention, and shoreline protection are vital to the region.

For example, ships annually transport nearly $100 billion worth of commerce through our region's four major ports. That waterborne trade is vital to the nation's growth and prosperity.

Our flood control projects have more than paid for themselves through prevention of flood damage. We are also involved in regional efforts to address challenges in water supply and water quality.

We believe that we are accomplishing our large, diverse program successfully and look forward to new and greater challenges.

BUDGET SUMMARY

We are requesting $271 million for water resources activities in Fiscal Year 1991. Construction General is our largest category, at $130 million, followed by Operations and Maintenance, at $127 million, and General Investigations, at $14 million. These funds will be combined with approximately $50 million we expect to receive in contributions from local sponsors.

Our request includes funds for one new preconstruction engineering and design activity for the Lackawanna River. I am also testifying for the first time for the Fiscal Year 1990 Congressional adds, which are: two preconstruction engineering and design efforts, the Buena Vista, VA and the James River 35 Foot Channel, VA; four studies, the Juniata River and Tributaries, PA, Wyoming Valley Inflatable Dam, PA, Delaware Bay Coastline, DE and NJ, and the Atlantic Intracoastal Waterway Bridge at Great Bridge, VA; and three construction projects, the Atlantic Coast of Maryland, Great Egg Harbor and Peck Beach, NJ, and Shinnecock Inlet, NY.

STRUCTURE OF REQUEST

I will discuss the North Atlantic Division's activities in this order: navigation; flood control; and shoreline protection, moving from south to north. I will then briefly discuss Operations and Maintenance.

NAVIGATION BUDGET REQUEST

Our boundaries include four of the nation's top ten ports. We are requesting $152.9 million for navigation studies and projects. Our largest category is Operations and Maintenance, at $108.3 million, followed by Construction General, at $43.0 million and General Investigations, at $1.6 million.

FISCAL YEAR 1991 CIVIL WORKS NAVIGATION PROGRAM

Project	FY 1991 Federal Requests	FY 1991 Non-Federal Cash Contributions	Total FY 1991 Non-Federal Cash & Other Contributions
SURVEYS			
DELAWARE			
Chesapeake & Delaware Canal-Baltimore Harbor Connecting Channels	$550,000	$550,000	$550,000
NEW JERSEY			
Delaware River Comprehensive Navigation Study	290,000	0	0
NEW YORK			
Hudson River	100,000	100,000	100,000
VIRGINIA			
James River Channel	262,000	262,000	262,000
Atlantic Intracoastal Waterway Bridge at Great Bridge	223,000	0	0
Subtotal (SURVEYS)	$1,425,000	$912,000	$912,000
PRECONSTRUCTION ENGINEERING AND DESIGN			
NEW JERSEY			
Delaware River, Philadelphia, PA to Trenton, NJ (Tioga Marine Terminal)	$100,000	$0	$0
Salem River	150,000	0	0
Subtotal(PED)	$250,000	$0	$0
Total GI	$1,675,000	$912,000	$912,000

FISCAL YEAR 1991 CIVIL WORKS NAVIGATION PROGRAM

Project	FY 1991 Federal Requests	FY 1991 Non-Federal Cash Contributions	Total FY 1991 Non-Federal Cash & Other Contributions
CONSTRUCTION			
NEW JERSEY			
Barnegat Inlet	$5,537,000	$4,316,000	$4,316,000
NEW YORK			
Fire Island to Jones Inlet	3,700,000	2,000,000	2,000,000
Hempstead Harbor	2,650,000	1,245,000	1,245,000
Kill Van Kull	31,000,000	10,698,000	10,698,000
VIRGINIA			
Norfolk Harbor & Channels	100,000	0	0
Total CG	$42,987,000	$18,259,000	$18,259,000

JAMES RIVER CHANNEL, VA

The $262,000 requested for Fiscal Year 1991 will be used, along with matching local funds, to complete our feasibility phase of this study. The study is cost shared 50-50 with the City of Richmond. The study is addressing the need to deepen and widen the James River channel.

ATLANTIC INTRACOASTAL WATERWAY BRIDGE AT GREAT BRIDGE, VA

The Fiscal Year 1991 request includes $223,000 to continue our feasibility phase efforts. This fully Federally funded feasibility study will evaluate alternatives for repairing or replacing the existing Route 168 highway bridge over the Atlantic Intracoastal Waterway at Great Bridge, Virginia. The bridge is outdated and in poor condition. This study is one of our Congressional adds in Fiscal Year 1990.

NORFOLK HARBOR & CHANNELS, VA

The $100,000 requested in Fiscal Year 1991 will complete the plans and specifications on the 55-foot outbound Norfolk channel.

Our study on the long term disposal of dredged material in the inner harbor is under review, after which the results will be made available to the Commonwealth of Virginia.

We have suspended our engineering and design on the Southern Branch Channel of the Elizabeth River since the capacity of the Craney Island dredged material disposal area is being approached. Our design effort will be resumed when the local sponsor identifies an alternative disposal site.

BALTIMORE HARBOR & CHANNELS, MD/VA

With the $26,633,000 provided for Fiscal Year 1990, the deepening of Baltimore Harbor to 50 feet is now almost complete. We expect the maritime industry to be using the full 50 foot project depth by October 1990.

CHESAPEAKE & DELAWARE CANAL-BALTIMORE HARBOR CONNECTING CHANNELS, DE/MD

The $550,000 in Fiscal Year 1991 will be used, along with matching local funds, to continue the feasibility phase of this study. The study is being cost shared on a 50-50 percent basis with the Maryland Port Authority. Our reconnaissance study, which is investigating the need for improvements in the canal and connecting channels, is scheduled to be completed in May 1990. This will be followed by initiation of the feasibility phase of the study.

DELAWARE RIVER COMPREHENSIVE NAVIGATION STUDY

The Fiscal Year 1991 request includes $290,000 for continuation of this fully Federally funded feasibility study. We will finalize an interim report for improvements to the Delaware River main shipping channel and continue investigations of a Delaware Bay lightering and transfer area.

DELAWARE RIVER, PHILADELPHIA, PA TO TRENTON, NJ
(TIOGA MARINE TERMINAL, PA)

Funds in the amount of $100,000 are requested in Fiscal Year 1991 to continue preconstruction engineering and design on improvements to the Delaware River in the vicinity of the Tioga Marine Terminal. This project involves a maneuvering area and a turning basin in the port of Philadelphia.

SALEM RIVER, NJ

The Fiscal Year 1991 request includes $150,000 to continue preconstruction engineering and design. The Salem River improvement involves realigning, widening, and deepening the Federal channel to 18 feet.

NEW JERSEY INTRACOASTAL WATERWAY, NJ

Last year, Major General van Loben Sels testified to initiating preconstruction engineering and design to widen and deepen the existing channels leading to Ottens Harbor and Middle Thorofare Harbor. We have not included any funds in the Fiscal Year 1991 budget request because we and the local sponsor have decided to pursue these items under our Continuing Authority program for navigation projects.

BARNEGAT INLET, NJ

Barnegat Inlet, New Jersey is one of the most dangerous inlets in the northeast. Each year many vessels require assistance. Funds in the amount of $5,537,000 are requested for Fiscal Year 1991 which, together with a cash contribution of $4,316,000 from the local sponsor, will be used to complete a new south jetty that will decrease danger to commercial and recreational vessels. We will also complete the dredging to realign the 10-foot deep navigation channel.

KILL VAN KULL AND NEWARK BAY CHANNELS DEEPENING, NY & NJ

The Fiscal Year 1991 request includes $31,000,000 which, together with a cash contribution of $10,698,000 from the local sponsor, will be used to continue the dredging contracts for the first construction phase. The Port Newark/Port Elizabeth complex will benefit from the Kill Van Kull and Newark Bay Channels Deepening project. This project will deepen the navigation channels from 35 to 44 feet in two phases.

NEW YORK HARBOR COLLECTION AND REMOVAL OF DRIFT MATERIALS, NY & NJ

Drift removal work on the Weehawken to Edgewater and Hoboken shorelines will continue with carry over funds through Fiscal Year 1991. With funds you provided for fiscal year 1990, we are re-evaluating this bistate project to ensure that future work is both economically justified and complies with the Administration's budget priorities.

HUDSON RIVER, NY

The Hudson River supports commercial navigation from New York City to Albany, NY. The Fiscal Year 1991 request includes $100,000 which, together with the $100,000 contributed from the local sponsor, will be used to continue the feasibility study to determine if we should improve the channel and provide new anchorages. The Port of Albany Commission has expressed their willingness to cost share in this feasibility study.

HEMPSTEAD HARBOR, NY

The $2,650,000 requested for Fiscal Year 1991, together with a cash contribution of $1,245,000 from the local sponsor, will be used to continue our construction efforts to remove abandoned derelict barges and other debris at three locations along the western shore of Hempstead Harbor.

FIRE ISLAND TO JONES INLET, NY

The $3,700,000 requested for Fiscal Year 1991, together with a cash contribution of $2,000,000 from the local sponsor, will be used to dredge the Federal channel in Fire Island Inlet. The dredged material will be hydraulically pumped to Gilgo Beach on Long Island, where erosion of the shoreline is threatening to undermine a state highway and sewer outfall in Suffolk County, New York.

SHINNECOCK INLET, NY

We are negotiating the construction cost sharing agreement with the State of New York for Shinnecock Inlet. Although no funds are budgeted to continue work on this project, the funds Congress provided last year will be sufficient to allow dredging of the dangerous offshore sandbar.

FLOOD PROTECTION BUDGET REQUEST

In the area of flood damage prevention, NAD's area of responsibility includes several major cities, a number of large rivers, and a host of waterways. We are committed to protecting people and property in our area by reducing flood damages. We are requesting $66.5 million, with Construction General the largest category, at $37.0 million. Operations and Maintenance is the next highest, at $18.2 million, followed by General Investigations at $11.3 million.

FISCAL YEAR 1991 CIVIL WORKS FLOOD PROTECTION PROGRAM

Project	FY 1991 Federal Requests	FY 1991 Non-Federal Cash Contributions	Total FY 1991 Non-Federal Cash & Other Contributions
SURVEYS			
MARYLAND			
Anacostia River	$200,000	$200,000	$200,000
Jennings Randolph Lake	150,000	150,000	150,000
PENNSYLVANIA			
Curwensville Lake	77,000	55,000	77,000
Juniata River	60,000	0	0
Lackawanna River	45,000	29,000	45,000
Raystown Lake	165,000	85,000	165,000
Wyoming Valley Inflatable Dam	150,000	0	0
VIRGINIA			
Upper James River	131,000	0	0
Subtotal (SURVEYS)	$978,000	$519,000	$637,000
PRECONSTRUCTION ENGINEERING AND DESIGN			
NEW JERSEY			
Lower Saddle River	$590,000	$0	$0
Molly Ann's Brook	420,000	0	0
Passaic River Main Stem	5,000,000	0	0
Ramapo River at Oakland	250,000	0	0
Green Brook	2,000,000	0	0
NEW YORK			
Town of Mamaroneck	150,000	0	0
PENNSYLVANIA			
Lackawanna River	300,000	0	0
VIRGINIA			
Buena Vista	600,000	0	0

FISCAL YEAR 1991 CIVIL WORKS FLOOD PROTECTION PROGRAM

Project	FY 1991 Federal Requests	FY 1991 Non-Federal Cash Contributions	Total FY 1991 Non-Federal Cash & Other Contributions
PRECONSTRUCTION ENGINEERING AND DESIGN (CONTINUED)			
WEST VIRGINIA			
Moorefield	$400,000	$0	$0
Petersburg	600,000	0	0
Subtotal (PED)	10,310,000	0	0
Total GI	$11,288,000	$519,000	$637,000
CONSTRUCTION			
NEW YORK			
Yonkers	$355,000	$80,000	$125,000
PENNSYLVANIA			
Lock Haven	18,600,000	1,132,000	6,922,000
VIRGINIA			
Richmond	18,000,000	4,541,000	7,576,000
Total CG	$36,955,000	$5,753,000	$14,623,000

UPPER JAMES RIVER, VA

The Fiscal Year 1991 request includes $131,000 to complete the reconnaissance phase of this study. The Upper James River frequently floods areas upstream from Lynchburg, Virginia. In 1985, Tropical Storm Juan caused more than $100 million in damage. The reconnaissance phase of the study is investigating the potential structural and non-structural measures to remedy the flooding problems. The Commonwealth of Virginia has expressed a willingness to cost share in the feasibility phase study.

BUENA VISTA, VA

Funds in the amount of $600,000 are requested for Fiscal Year 1991 to continue preconstruction engineering and design work on the Buena Vista, Virginia project. Buena Vista, Virginia suffered major floods during storms in 1936, 1969, and 1985. If the 1969 flood of record occurred today, it would cause over $47 million in damages. Our recommended plan is a levee and floodwall system to alleviate the threat of flooding. I expect to complete the Phase I study in March 1990 and initiate preconstruction engineering and design this year.

RICHMOND, VA

We have begun construction on the Richmond local flood project. The City of Richmond is the local sponsor for the project. The City has purchased most of the land needed. Clearing is well underway. We have awarded the first construction contract. The $18,000,000 requested for Fiscal Year 1991, together with a $4,541,000 cash contribution from the local sponsor, will continue our construction contracts for the floodwalls and closures; Southside levee, pump stations, and drainage; and initiate our Northside drainage contract.

WAYNESBORO, VA

No funds are being requested for our Waynesboro, Virginia study since our reconnaissance investigation determined that there are no economically feasible solutions.

PETERSBURG, WV

The request for Fiscal Year 1991 includes $600,000 to continue the preconstruction engineering and design efforts for this project. Petersburg, West Virginia sustains flood damage whenever the South Branch of the Potomac River floods. We are completing the feasibility study and will initiate the preconstruction engineering and design next month.

MOOREFIELD, WV

Funds in the amount of $400,000 are requested in Fiscal Year 1991 to continue preconstruction engineering and design efforts for this project. In 1985, Tropical Storm Juan caused $29 million of damage to Moorefield, West Virginia. We are completing our feasibility study and will initiate preconstruction engineering and design by May.

JENNINGS RANDOLPH LAKE REALLOCATION STUDY, MD/WV

The $150,000 requested for Fiscal Year 1991 will be used, along with $150,000 in matching local funds, to continue the feasibility phase of the study. We are investigating the feasibility of reallocating storage in the Jennings Randolph Lake. An electric power generating station, a solid waste incinerator utility and a Washington, DC water supply utility have expressed interest in additional water supply storage.

ANACOSTIA RIVER & TRIBUTARIES, MD/DC

The $200,000 requested in Fiscal Year 1991 will be used to initiate the feasibility study in the Anacostia River basin. These funds, along with the matching local sponsors' funds of $200,000, will be used to determine if improvements are feasible to control flooding, erosion, restricted navigation, and other problems that afflict the second river of the Nation's Capitol.

WYOMING VALLEY, PA

We are continuing our preconstruction engineering and design for the Agnes level of protection with the funds provided in Fiscal Year 1990. No funds are included in the Fiscal Year 1991 budget request because of unresolved issues concerning the project's economic justification and design. We are reexamining the project's design parameters for the higher level of protection authorized by Congress.

WYOMING VALLEY INFLATABLE DAM, PA

In Fiscal Year 1990 Congress added the Wyoming Valley Inflatable Dam study. The $150,000 requested in Fiscal Year 1991 will be used to complete the reconnaissance phase of the study. This dam would be operated to create a pool of water without adversely affecting the Wyoming Valley flood control project.

F. E. WALTER LAKE, PA

No funds are being requested for construction on the F. E. Walter Lake, Pennsylvania project since the local sponsor is unable to execute the cost-sharing agreement at this time.

LACKAWANNA RIVER, PA

The $45,000 requested in Fiscal Year 1991 will be used, along with a $29,000 cash contribution and $16,000 of in-kind services from the local sponsors, to complete the feasibility phase of the study. The feasibility study co-sponsors are the City of Scranton, the Borough of Olyphant, and the Pennsylvania Department of Environmental Resources. The study is scheduled for completion in May 1991. Also, the Fiscal Year 1991 request includes $300,000 to initiate preconstruction engineering and design work.

RAYSTOWN LAKE REALLOCATION STUDY, PA

The $165,000 requested for Fiscal Year 1991 will be used, along with an $85,000 cash contribution and $80,000 of in-kind services from the local sponsor, to continue the feasibility phase of the study. During the past year the Susquehanna River Basin Commission has become the non-Federal sponsor. Negotiations with the Susquehanna River Basin Commission have resulted in a reduction in scope of the study.

CURWENSVILLE LAKE REALLOCATION STUDY, PA

A similar study is being conducted for Curwensville Lake. The scope of this study has also changed; however, in this case, it has been expanded to investigate storage reallocation needs of the Lancaster County Solid Waste Authority. The $77,000 requested for Fiscal Year 1991 will be used, along with matching local funds in the amount of a $55,000 cash contribution and $22,000 of in-kind services, to complete the feasibility study for reallocating flood control storage. The local sponsor for this study is the Susquehanna River Basin Commission.

SUSQUEHANNA RIVER BASIN FLOOD DAMAGE PREVENTION STUDY, PA

No funds are being requested for the Susquehanna River Basin Flood Damage Prevention study since the potential local sponsor is unable to provide the non-Federal cost sharing at this time.

JUNIATA RIVER AND TRIBUTARIES, PA

I am reporting for the first time on the Juniata River and Tributaries study, another Congressional add in Fiscal Year 1990. Funds in the amount of $60,000 are requested for Fiscal Year 1991 to complete the reconnaissance phase of the study. There are 155 municipalities that suffer from flooding when major storms occur, causing annual flood damages estimated to be $6.5 million.

LOCK HAVEN, PA

The local cooperation agreement for the Lock Haven local flood protection project has been approved by both the City of Lock Haven and the Army, and will be signed as soon as state and local funds are available. The Fiscal Year 1991 request includes $18,600,000 to continue construction for the Lock Haven flood control project, including the levee system, cultural mitigation facilities, and non- structural measures for Woodword Township. The local sponsor is scheduled to make cash contributions of $1,132,000 and an additional $5,790,000 on this project for lands, easements, rights-of-way and relocations.

TAMAQUA, PA

No funds are being requested for construction of the Tamaqua, Pennsylvania flood control project since the local sponsor is unable to execute the cost-sharing agreement at this time and prior year funds are available.

GREEN BROOK, NJ

The $2,000,000 requested for Fiscal Year 1991 will be used to continue the preconstruction engineering and design work on the Green Brook, New Jersey project. The flood protection measures along Green Brook and its tributaries, consisting of levees, floodwalls, and pumping stations, will protect this primarily urban and industrial area.

HACKENSACK RIVER, NJ

No funds are being requested for our Hackensack River, New Jersey study, since our reconnaissance investigation determined that there are no economically feasible solutions for a tidal barrier.

LOWER SADDLE RIVER, NJ

Funds in the amount of $590,000 are requested in Fiscal Year 1991 to continue preconstruction engineering and design work on the project. Over 2,000 homes and businesses have been affected by major flooding along the Lower Saddle River in New Jersey. Our project will modify existing channels in the area to protect those establishments.

MOLLY ANN'S BROOK, NJ

The Fiscal Year 1991 request includes $420,000 to continue preconstruction engineering and design work for the project. The Molly Ann's Brook in Paterson, Haledon and Prospect Park, New Jersey, sustains extensive flooding during major storms. We are designing a project to modify the existing channel to provide flood protection.

RAMAPO RIVER AT OAKLAND, NJ

The $250,000 requested for Fiscal Year 1991 will be used to continue preconstruction engineering and design work for the project. We will modify the existing channel of the Ramapo River at Oakland, New Jersey and add gates at the Pompton Lake Dam to provide flood protection.

PASSAIC RIVER EAST BANK STABILIZATION, NJ

We have not included any funds in Fiscal Year 1991 for the Passaic River East Bank Stabilization study since the reconnaissance investigation determined that there are no economically feasible solutions that are consistent with current budgetary priorities.

PASSAIC RIVER, VICINITY OF BEATTIE'S DAM, NJ

No funds are being requested for our Passaic River, Vicinity of Beattie's Dam study since our reconnaissance investigation determined that there are no economically feasible solutions.

PASSAIC RIVER MAIN STEM, NJ

The Fiscal Year 1991 request includes $5,000,000 to continue preconstruction engineering and design work for the Passaic River Main Stem, New Jersey project. Flooding problems in the Passaic River Basin are among the worst in the United States. If the 1903 flood of record were to occur today, it would cause over $2 billion in flood damage.

TOWN OF MAMARONECK, NY

The Fiscal Year 1991 request includes $150,000 to continue preconstruction engineering and design work for this project. Major flooding of the Sheldrake River in the Town of Mamaroneck damages residential property. To alleviate it, we plan to modify the existing channel, build flood protection structures, and levees.

YONKERS, NY

Several commercial establishments have sustained flood damages upstream from our Yonkers flood control project. The $355,000 requested for Fiscal Year 1991, together with the local sponsor contributions of $125,000, will be used to initiate construction for modifying the existing channel, removing a bridge, and tying into our existing project to alleviate the flooding threat. The local sponsor is the New York State Department of Environmental Conservation.

SHORELINE PROTECTION BUDGET REQUEST

One chronic regional problem is damage to communities located on coastal beaches. We are requesting $51.4 million to improve or maintain beaches in the Northeast. Construction General is the largest category, at $50.3 million, followed by General Investigations at $1.1 million.

FISCAL YEAR 1991 CIVIL WORKS SHORELINE PROTECTION PROGRAM

Project	FY 1991 Federal Requests	FY 1991 Non-Federal Cash Contributions	Total FY 1991 Non-Federal Cash & Other Contributions
SURVEYS			
DELAWARE			
Delaware Bay Coastline	$355,000	$0	$0
Delaware Coast, Cape Henlopen to Fenwick Island	393,000	0	0
NEW YORK			
Long Beach Island	150,000	150,000	150,000
Subtotal (SURVEYS)	$898,000	$150,000	$150,000
PRECONSTRUCTION ENGINEERING AND DESIGN			
NEW YORK			
Coney Island	$250,000	$0	$0
Subtotal (PED)	250,000	0	0
Total GI	$1,148,000	$150,000	$150,000
CONSTRUCTION			
DELAWARE			
Delaware Coast Protection	$130,000	$194,000	$194,000
MARYLAND			
Atlantic Coast of Maryland	14,800,000	7,680,000	8,802,000
NEW JERSEY			
Cape May Inlet to Lower Township	3,200,000	127,000	127,000
Great Egg Harbor Inlet & Peck Beach	3,250,000	1,150,000	2,090,000
Sand Hook to Barnegat Inlet	29,000,000	1,579,000	4,439,000
Total CG	$50,380,000	$10,730,000	$15,652,000

TANGIER ISLAND, VA

Construction of the stone revetment on the west side of Tangier Island is complete. This structure protects the island's sewage treatment plant and the airport runway from destruction.

ATLANTIC COAST OF MARYLAND

The $14,800,000 requested for Fiscal Year 1991, together with the State of Maryland's contributions of $8,802,000, will be used to continue construction for the Atlantic Coast of Maryland project. Flood damage from high tides and wave attack during hurricanes and major storms has caused hardship for the inhabitants of the Atlantic Coast of Maryland from Ocean City to the Delaware State line. Our hurricane protection project will provide protection by raising and widening the beaches, building dunes, and a steel bulkhead.

DELAWARE COAST PROTECTION

The Fiscal Year 1991 request for $130,000, together with the State of Delaware's cash contributions of $194,000, will be used to provide periodic nourishment to protect the shoreline along the Delaware Coast, immediately north of the Indian River Inlet, from erosion. The sand bypassing plant at Indian River Inlet is complete and operational. This plant is the first permanent sand pumping plant in our region.

DELAWARE COAST, CAPE HENLOPEN TO FENWICK ISLAND

The $393,000 requested for Fiscal Year 1991 will be used to complete the reconnaissance phase of the study. The Delaware Department of Natural Resources and Environmental Control has expressed a willingness to cost-share in the feasibility phase of the study. Severe flooding historically causes erosion, loss of lives, and financial hardships to inhabitants of the Atlantic Coast of Delaware.

CHESAPEAKE BAY SHORELINE EROSION

With the $262,000 provided in Fiscal Year 1990, we are completing the study of the Chesapeake Bay's shoreline erosion problems which we began in Fiscal Year 1987. As part of this study, we have constructed several demonstration projects that test low cost methods of stabilizing exposed shorelines. In addition, we have identified three areas that can be pursued for shoreline protection projects under the Continuing Authorities program. This study was beneficial in both promoting a healthy Chesapeake Bay and protecting valuable property.

DELAWARE BAY COASTLINE

The Delaware Bay Coastline study is the fourth and last of our studies added by Congress in Fiscal Year 1990. The $355,000 requested in Fiscal Year 1991 will be used to complete the reconnaissance phase of the study. The New Jersey Department of Environmental Protection and the Delaware Department of Natural Resources and Environmental Control have expressed a willingness to cost-share in the feasibility phase of the study. We will evaluate the adverse impacts severe erosion creates on 60 miles of shoreline in Delaware and New Jersey. The study will also determine the feasibility of potential Federal projects.

CAPE MAY INLET TO LOWER TOWNSHIP, NJ

Our shoreline protection project at Cape May, New Jersey will protect the coastal area from storm damage. The $3,200,000 requested for Fiscal Year 1991, together with the $127,000 cash contributions from the State of New Jersey, will be used complete the first cycle of beach nourishment.

GREAT EGG HARBOR INLET AND PECK BEACH, NJ

I am reporting for the first time on construction of the shoreline protection project at Great Egg Harbor Inlet and Peck Beach, New Jersey. The $3,250,000 requested for Fiscal Year 1991, together with the State of New Jersey's contributions of $2,090,000, will continue Phase I and initiate Phase II of our beachfill contracts. This project will provide beachfill to protect the Ocean City, New Jersey beaches from severe wave attack and erosion caused by major storms.

SANDY HOOK TO BARNEGAT INLET, NJ

This project consists of improvements to three sections of beach along the New Jersey shore. The $29,000,000 requested for Fiscal Year 1991, together with the State of New Jersey's contributions of $4,439,000, will continue the construction of the Sea Bright to Ocean Township Section, and we will continue the engineering and design of the Asbury Park to Manasquan Section.

ATLANTIC COAST OF NEW YORK CITY, ROCKAWAY INLET TO NORTON POINT, (CONEY ISLAND), NY

The Fiscal Year 1991 request includes $250,000 to complete preconstruction engineering and design for the Coney Island project. Residential and commercial properties along the south shore of Long Island in Brooklyn, New York are plagued by storms and erosion. This project involves beach nourishment and modifying the existing groins.

LONG BEACH ISLAND, NY

The $150,000 requested for Fiscal Year 1991 will be used, along with matching local fund of $150,000, to continue the feasibility phase of the study. The reconnaissance study was completed in July 1989. We are currently negotiating the feasibility cost- sharing agreement with the New York State Department of Environmental Conservation and the City of Long Beach, New York, which have expressed a willingness to cost-share in the feasibility phase of the study. Storms often damage Long Beach Island, New York. Today, a storm like Hurricane Donna in 1960 would cause over $16 million in damage. We will be initiating the feasibility phase of the study this spring.

OPERATIONS AND MAINTENANCE BUDGET REQUEST

Operations and Maintenance of our projects is a vital activity. The requested $119,372,000 for Fiscal Year 1991 will be used to operate and maintain 114 projects. The requested funds are sufficient to maintain high priority projects.

CHESAPEAKE & DELAWARE CANAL BRIDGES, DE

The $7,225,000 requested for Fiscal Year 1991 will be used to provide completion funds for one repair contract and to award another contract to complete repair of the St. George bridge. We intend to implement these contract actions shortly after the funds are received. A high point for the year was the agreement with the State of Delaware to repair the bridge while keeping traffic disruption to a level acceptable to the State.

CONCLUSION

Mr. Chairman, that concludes my overview of the North Atlantic Division's Fiscal Year 1991 budget request of $271 million. I will be pleased to answer any questions you or other distinguished members of your subcommittee may have.

Thank you.

Mr. Bevil. Without objection, we will insert the justification material for the North Atlantic Division in the record at this point.

[The information follows:]

Justification of Estimates for Civil Functions Activities
Department of the Army, Corp of Engineers
Fiscal Year 1991

SUMMARY NORTH ATLANTIC DIVISION

General Investigations	FY 1990 Allocations $	FY 1991 Request $	Increase or Decrease $
Surveys	4,073,000	3,301,000	- 772,000
Preconstruction Engineering and Design	10,026,000	10,810,000	784,000
Construction, General			
Construction	87,099,000	130,322,000	43,223,000
Operation and Maintenance, General			
Project Operation and Maintenance	112,625,000	119,372,000	6,747,000
Major Rehabilitation	3,275,000	7,225,000	3,950,000
Total	217,098,000	271,030,000	53,932,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
1. SURVEYS - NEW - None					
2. SURVEYS - CONTINUING					

a. Navigation Studies: The amount of $1,202,000 is requested in Fiscal Year 1991 to complete one navigation study and continue three navigation studies.

DELAWARE

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Chesapeake and Delaware Canal, - Baltimore Harbor Connecting Channels, (Deepening) DE & MD	2,615,000	400,000	263,000	550,000	1,402,000

The existing Federal navigation project for the Chesapeake and Delaware Canal provides for a channel 44 miles long, 35 feet deep and 450 feet wide from the Delaware River to deepwater in the Chesapeake Bay off Pooles Island. The project includes Federal ownership of four bridges. The Baltimore Harbor connecting channels have a total length of 13 miles and authorized depths 35 feet and widths of 600 feet. These projects provide deep draft commercial channels for ships calling at Baltimore, Maryland with a shortcut to and from Philadelphia, Pennsylvania, the northeast United States and Europe. The study will investigate navigation improvements for the canal and connecting channels including possible channel deepening from 35 feet to 40 feet mean low water, widening at bends, anchorage improvements and refinement of traffic management. The present canal dimensions were authorized in 1954 and the connecting channels in 1958, based on vessel characteristics and traffic levels which are now significantly exceeded. Almost 11,000 vessels transport 17 million tons of cargo through the canal annually. Substantial benefits from waterway improvements are likely to occur for commercial vessels, especially container and bulk (grain and petroleum) traffic, by either transporting their cargoes in larger vessels or by reduced sailing time. Alternative routes around the Delmarva peninsula add up to 150 miles for each vessel trip. The Maryland Port Authority in a letter dated June 7, 1989 has expressed a willingness to provide appropriate items of local cooperation.

Fiscal Year 1990 funds will be used to initiate the feasibility phase of the study. The funds requested in Fiscal Year 1991 will be used to continue the feasibility phase of the study including environmental and

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Chesapeake and Delaware Canal, - Baltimore Harbor Connecting Channels, (Deepening) DE & MD (cont'd)					

economic studies, and public involvement. The preliminary estimated cost of the feasibility phase is $4,430,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost-sharing is as follows:

Total Estimated Study Cost	$4,830,000
Reconnaissance Phase (Federal)	400,000
Feasibility Phase (Federal)	2,215,000
Feasibility Phase (non-Federal)	2,215,000

The reconnaissance phase is scheduled for completion in May 1990. The feasibility is scheduled for completion in March 1995.

NEW JERSEY

Delaware River Comprehensive Navigation Study, NJ, PA, & DE	7,035,000	6,209,000	439,000	290,000	97,000

The existing Delaware River Navigation System includes six deep draft navigation projects serving the Ports of Philadelphia, Pennsylvania; Camden, New Jersey; Trenton, New Jersey; and Wilmington, Delaware. These ports

Study	Total Estimate Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Delaware River Comprehensive Navigation Study, NJ, PA, & DE	(cont'd)				

support annual vessel passages averaging 44,000 passages and tonnage averaging 114 million tons. The system provides a substantial economic stimulus to the entire region, supporting nearly 100,000 port related jobs. The major commodities transported are crude oil and refined petroleum associated with the seven oil refineries located along the river and its tributaries. Other major commodities likely to benefit from improvements include iron ore, scrap, coal, grain, chemicals, limestone, motor vehicles, gypsum, dry bulk commodities shipments, lumber, and containerized general cargo. The system also serves naval vessels at the Philadelphia Naval Base. The Delaware River Port Authority, the Delaware River and Bay Authority, the Commonwealth of Pennsylvania, the City of Philadelphia, the City of Wilmington, the South Jersey Port Corporation and the owners and operators of large bulk cargo carriers cite the need for deeper channels and improved navigation facilities to fully accommodate current and future vessel movements through the Delaware River ports. An average nine million tons of cargo are lightered into barges annually due to the current 40-foot channel depths.

A Fiscal Year 1985 interim feasibility report for the Delaware River from Philadelphia to Wilmington recommended deepening of the lower Schuylkill River, Philadelphia, Pennsylvania from 33 feet to 40 feet; the Beckett Street Terminal, Camden, New Jersey from 37 feet to 40 feet; and further consideration of deepening Wilmington Harbor, Delaware from 35 feet to 38 feet under the special continuing authorities program. Two draft interim feasibility reports were completed in fiscal Year 1989 and recommend deepening the Salem River, New Jersey from 12 feet to 18 feet and deepening the Maurice River, New Jersey from 7 feet to 11 feet. The recommendations are contingent on support and demonstration of financial capability by the local sponsors.

Work remaining to be done consists of investigating improvements greater than 40 feet throughout the entire study area and improvements to lesser depths in those areas not covered by the interim reports. Fiscal Year 1990 funds are being used to complete detailed economic, design, groundwater, and environmental studies, and to complete a draft report on main channel deepening. Fiscal year 1991 funds will be used to finalize a main channel interim report and for investigations of a Delaware Bay lightering and transfer area. The final study report of the Division Engineer is scheduled for completion in August 1992.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 North Atlantic Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
NEW YORK					
Hudson River Channel	1,000,000	400,000	25,000	100,000	475,000

The study area encompasses the portion of the Hudson River project from New York City to Albany, New York, approximately 145 miles in length. The purpose of the study is to determine if there is any Federal interest in improvements for commercial navigation, including channel improvements and anchorage areas.

The major problem associated with the existing channel is that the 32-foot deep existing Federal project requires vessels to arrive with loads which are much less than their capacity. Channel deepening and/or anchorage areas will reduce or eliminate these inefficiencies, thereby generating transportation savings. A public deep draft terminal facility at the northern end of the study area handles cargo in excess of 5 million tons annually, including crude petroleum, grain, molasses, scrap iron, wood pulp, bananas, wheat, corn, motor vehicles, gypsum, and residual fuel. The tonnage is transported by approximately 150 dry cargo vessels and 190 tankers with design drafts up to 35 feet. Local interests indicate they need improvements urgently if the Port of Albany is to remain competitive with other deep water ports. The local sponsor is the Port of Albany Commission. In their letter dated October 13, 1987, they indicated their support for the study and their willingness to cost-share the feasibility phase.

The study will determine the feasibility of deepening the existing 32-foot channel and providing suitable anchorage areas to take advantage of the tide. Fiscal Year 1990 funds will be used to initiate the feasibility phase of the study, principally data gathering. Funds for Fiscal Year 1991 will be used to continue the feasibility phase of the study including initiation of economic, geotechnical and environmental analyses. The preliminary estimated cost of the feasibility phase is $1,200,000, which is shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$1,600,000
Reconnaissance Phase (Federal)	400,000
Feasibility Phase (Federal)	600,000
Feasibility Phase (Non-Federal)	600,000

The reconnaissance phase is scheduled for completion in June 1990. The feasibility study is scheduled for completion in March 1993.

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 North Atlantic Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
VIRGINIA					
James River Channel	700,000	200,000	238,000	262,000	0

The James River flows 340 miles generally southeast from the Allegheny Mountains, entering Hampton Roads at Newport News, Virginia. The river is tidal to Richmond, Virginia, a distance of about 90 miles. The existing channel is 25-feet deep by 300-feet wide from the mouth to Hopewell; 25-feet deep by 200-feet wide from Hopewell to the Richmond Deepwater Terminal; and 18-feet deep by 200-feet wide to Richmond. The purpose of the study is to determine if there is any Federal interest in deeping and/or widening the waterway.

The major problems associated with the existing channel, as identified by the Virginia Pilot's Association, are the lack of adequate depths and widths. This condition is restricting the ability of the waterway to efficiently and safely handle traffic that is projected to originate or terminate in the rapidly growing Richmond area. The channel handles commerce in excess of 10 million tons annually, including petroleum products, sand and gravel, basic chemicals, fertilizers and other commodities. This tonnage was transported by vessels which can utilize drafts exceeding 28-feet. About 26 thousand vessel trips are made annually. The City of Richmond and Commonwealth of Virginia are constructing $14,000,000 worth of land side improvements at the Richmond Terminal.

The 1962 and the 1988 Water Resource Development Acts provide authorization to increase the project depth to 35-feet from Hampton Roads to Richmond Deepwater Terminal. However, this project was never constructed. A 1972 study concluded that such an improvement be deferred and that a restudy be made when conditions change sufficiently to warrant a new economic analysis. The Richmond Port Authority has indicated that current and prospective commerce justify the need for the study. Favorable support has come from the City of Richmond, Virginia, the Richmond Port Authority, the Virginia Pilot's Association and the Virginia Port Authority.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
James River Channel (cont'd)					

The study will consider the need for and feasibilty of deepening and/or widening the existing channel from Hampton Roads to Richmond. Particular attention will be given to determining the feasibilty of widening certain bends along the James River between Hopewell and Richmond. Fiscal Year 1990 funds are being used to initiate the feasibility study. The funds requested for Fiscal Year 1991 will be used to complete the feasibility study. The preliminary estimated cost of the feasibility phase is $1,000,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,200,000
Reconnaissance Phase (Federal)	200,000
Feasibility Phase (Federal)	500,000
Feasibility Phase (Non-Federal)	500,000

The reconnaissance phase is scheduled for completion in May 1990. The feasibility study is scheduled for completion July 1992.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Subtotal Navigation Studies - Continuing	11,350,000	7,209,000	965,000	1,202,000	1,974,000

29 JAN 1990

b. Flood Damage Prevention Studies: The amount of $828,000 is requested in Fiscal Year 1991 to complete five flood damage prevention studies and continue two flood damage prevention studies.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
MARYLAND					
Anacostia River and Tributaries, MD and DC	960,000	0	260,000	200,000	500,000

The Anacostia River has a total drainage area of 170 square miles, of which 136 square miles are in Maryland, and 34 square miles are in the District of Columbia. The Northeast and Northwest Branches originate in Maryland and flow through several highly urbanized areas before forming the Anacostia River about 9 miles upstream from its junction with the Potomac River. The study area includes the entire drainage area of the Anacostia River. This study will address urban flood damage reduction, navigation and other related water resources problems.

Specific urban areas in Maryland are subject to flood damages to residential and commercial development from the Northeast and Northwest Branches and their tributaries. Rapid urbanization over the last several decades in the drainage area has resulted in increased runoff and more frequent major flood events. Major floods occurred in June 1972 and September 1975 and while existing Federal projects prevented about $10 million in damages during each event, areas outside the protection suffered about $2 million in damages at the time of the floods. The June 1972 flood is the flood of record throughout the Maryland portion of the basin. The downstream or Washington, D.C. portion of the basin is subject to backwater flooding from both fluvial and tidal floods on the Potomac River. The flood of record in the tidal portion of the basin occurred in October 1942 and produced stages of approximately 11 feet along the highly developed Anacostia waterfront in southeast Washington, D.C. A 200 year event today would cause over $5 million in flood damages to residential and commercial development along the Anacostia River.

Other serious water resources problems in the basin include streambank erosion and sedimentation, water quality, and degradation and loss of fish and wildlife and recreation resources. Streambank erosion is threatening public facilities including roadways, bridges and utilities. The high sedimentation rates in the river are resulting in high maintenance dredging requirements for the existing Federal navigation projects located in the downstream portion of the basin; however, the lack of environmentally acceptable areas for

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Anacostia River and Tributaries, MD and DC	(cont'd)				

disposal of the dredged material has resulted in deferred maintenance. The study will consider measures to control erosion and sedimentation and will examine upstream sediment debris basins to reduce downstream dredging needs. Support for the study has been expressed by the State of Maryland and the Interstate Commission on the Potomac River Basin who fully understand their cost-sharing requirements for the feasibility phase study.

Fiscal Year 1990 funds are being used to fully fund the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,400,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,660,000
Reconnaissance Phase (Federal)	260,000
Feasibility Phase (Federal)	700,000
Feasibility Phase (Non-Federal)	700,000

The reconnaissance phase is scheduled for completion in February 1991. The feasibility study is scheduled for completion in September 1993.

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
PENNSYLVANIA					
Curwensville Lake - Reallocation	248,000	0	171,000	77,000	0

The existing Curwensville Lake flood control project is located on the West Branch Susquehanna River in Clearfield County, Pennsylvania. Continuing economic growth in the basin is causing severe demands on water and related land resources. Increasing industrial growth will contribute to the increasing consumptive uses of water resulting in a marked reduction in natural streamflow and freshwater inflow to the Chesapeake Bay. In September 1976 the Susquehanna River Basin Commission required that consumptive users provide water equal to the amount consumed during periods of low flow. The Pennsylvania Electric Company is currently operating a generating facility at Shawville, Pennsylvania, which may require between 1,000 to 3,000 acre-feet of storage in order to offset a future consumptive flow loss of 15 cubic feet per second during cooling tower operations. In addition, the Lancaster County Solid Waste Management Authority has recently indicated an interest in storage reallocation for their consumptive use needs.

The primary objective of this study is to identify and evaluate in greater detail the costs and impacts of reallocating flood control storage at the Curwensville Lake project, currently estimated to be 5,360 acre-feet, which would result in a 6-foot rise in the permanent pool. The study is supported by the Susquehanna River Basin Commission, the Commonwealth of Pennsylvania, the State of Maryland, and the Pennsylvania Electric Company. The Susquehanna River Basin Commission is the non-Federal sponsor for the feasibility study.

Fiscal Year 1990 funds are being used to initiate the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to complete the feasibility phase of the study. The estimated cost of the feasibility phase is $496,000 or $136,000 greater than the estimate last presented to Congress. The revised estimate is based on negotiations with the potential local sponsors and reflects an expanded study scope to include storage reallocation for the Lancaster County Solid Waste Management Authority. The cost of the feasibility study is being shared on a 50-50 percent basis by the Federal Government and the local sponsor. Up to one-half of the non-Federal share may be in-kind services. A summary of the study cost-sharing is as follows:

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Curwensville Lake - Reallocation	(cont'd)				

Total Estimated Study Cost	$496,000
Reconnaissance Phase (Federal)	0
Feasibility Phase (Federal)	248,000
Feasibility Phase (Non-Federal)	248,000

The feasibility study is scheduled for completion in April 1992.

Juniata River and Tributaries	120,000	0	60,000	60,000	0

The Juniata River is a major tributary of the Susquehanna River and has a total drainage area of 3,404 square miles in central Pennsylvania. The river rises in Bedford and Blair Counties and flows in a northeasterly direction before its junction with the Susquehanna River at Duncannon, Pennsylvania. The study area is the entire drainage area of the Juniata River. The study will consider urban flood damage reduction and other related water resources problems.

Flood damages and the safety of residents is a significant problem in the basin. Major flooding occurred in the basin in 1936, 1950, 1972 and 1975, resulting in the construction of Raystown Dam on the Raystown Branch. Raystown provides flood protection to only three miles of the Raystown Branch and approximately 85 miles of the Juniata River between Huntingdon and its mouth. The Frankstown Branch, the Little Juniata River, and several major tributaries of the Juniata River remain susceptible to flooding. Based on criteria established by the Federal Emergency Management Agency, there are 155 flood prone municipalities within the Juniata River Basin. Average annual flood damages in the basin are estimated at $6.5 million.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to complete a reconnaissance study to determine the need for detailed studies, to obtain local cost sharing, and to develop a plan of study for the feasibility phase. The reconnaissance phase is scheduled for completion in June 1991.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 North Atlantic Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Lackawanna River	1,260,000	975,000	240,000	45,000	0

The Lackawanna River basin drains 346 square miles in northeastern Pennsylvania, mostly in Lackawanna County. The lower half of the drainage area contains heavy urban development that grew around the anthracite coal mining industry. As this activity has decreased, a more diverse industrial economy has developed. Included in this area are the City of Scranton, numerous small communities, and key transportation routes. These areas have been subject to frequent flooding, the most recent being in September 1985 and March 1986. A Presidential disaster declaration of the area followed the September 1985 flood when an estimated $16 million in damages was experienced in the study area at Scranton and Olyphant. The main stem, as well as tributary streams of the Lackawanna River were major problem areas. Although two Federal flood control dams, one Federal local protection project and several State local protection projects have been constructed in this watershed, flood problems persist. A reconnaissance level study has determined that potential local flood protection projects are feasible at Scranton and Olyphant, are in the Federal interest and have strong non-Federal support. The study co-sponsors are the City of Scranton, the Borough of Olyphant, and the Pennsylvania Department of Environmental Resources.

Fiscal Year 1990 funds are being used to continue the feasibility study. The funds requested for Fiscal Year 1991 will be used to complete the feasibility phase of the study. The estimated cost of the feasibility phase is $1,920,000 which is being shared on a 50-50 percent basis by Federal and non-Federal interests. Approximately $100,000 of the non-Federal share is being accomplished as in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,220,000
Reconnaissance Phase (Federal)	300,000
Feasibility Phase (Federal)	960,000
Feasibility Phase (Non-Federal)	960,000

The reconnaissance phase was completed in June 1988. The feasibility study is scheduled for completion in May 1991.

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Raystown Lake - Reallocation	420,000	0	166,000	165,000	89,000

The Raystown Lake project is located in Huntingdon County, Pennsylvania, on the Raystown Branch approximately five and one-half miles upstream from the confluence of the Raystown Branch with the Juniata River. The objective of this study is to evaluate the advisability of storage reallocation of the existing project in the interest of water supply and flood control.

Continuing economic growth and increasing population in the Susquehanna basin are causing severe demands on the basin's water and related land resources. Increasing economic growth will also contribute to the increasing consumptive uses of water which will result in a marked reduction in natural streamflow and freshwater inflow to the Chesapeake Bay. The lower Susquehanna River region which extends 60 miles from the mouth to York Haven, Pennsylvania, is particularly impacted by the basin's increasing growth. In order to satisfy municipal water supply and flow needs in this region, the Maryland Department of Natural Resources has developed a seasonally varying flow release schedule for the Conowingo hydroelectric dam which controls the downstream portion of this reach. The intent of this release schedule is to provide additional flow during critical low flow periods. Although this release schedule serves as a target for the lower Susquehanna River, an inspection of historical flows indicated that, in certain years, the natural inflow to this reach is unable to meet these target flows. Supplemental releases from upstream reservoirs could thus provide the necessary flow augmentation during low flow periods. The flood control and conservation storage in Raystown Lake could be a source of this storage. The reconnaissance report for the Chesapeake Bay and Tributaries Reallocation Study determined that up to 85,000 acre-feet of flood control storage could be reallocated to water supply-low flow storage with minimal loss in downstream flood protection.

The primary purposes of this study are to identify and evaluate in greater detail the costs and impacts of reallocating a maximum of 17,000 acre-feet of flood control storage and 150,000 acre-feet of conservation storage at the Raystown Lake project, resulting in a maximum 2-foot rise in the permanent pool. The Susquehanna River Basin Commission is the non-Federal sponsor. The study is also supported by the State of Maryland.

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 North Atlantic Division

Study	Total Estimate Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Raystown Lake - Reallocation (cont'd)					

Fiscal Year 1990 funds are being used to initiate the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase of the study. The estimated cost of the feasibility phase is $840,000 or $400,000 less than the estimate last presented to Congress. The revised estimate is based on negotiations with non-Federal interests. The cost of the feasibility study is being shared on a 50-50 precent basis by the Federal Government and the local sponsors. Up to one-half of the non-Federal share may be in-kind services. A summary of the study cost-sharing is as follows:

Total Estimated Study Cost	$840,000
Reconnaissance Phase (Federal)	0
Feasibility Phase (Federal)	420,000
Feasibility Phase (Non-Federal)	420,000

The feasibility study is scheduled for completion in March 1993.

Study	Total Estimate Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Wyoming Valley - Inflatable Dam	$250,000	0	100,000	150,000	0

The Wyoming Valley lies in Luzerne County in the northeast portion of the Commonwealth of Pennsylvania, approximately 110 miles northwest of New York City and 90 miles northeast of Harrisburg, Pennsylvania. The study area includes four existing Federal local protection projects in Plymouth, Kingston-Edwardville, Swoyersville-Forty Fort, and Wilkes-Barre and Hanover Township. According to the Pennsylvania Recreation Plan completed in 1980, deficits in opportunities for bicycling, fishing, and picnicking were anticipated for the Wyoming Valley region by the year 1990. Based on the Commonwealth's plan, there is expected to be a shortfall of 528,400 activity days for bicycling, 190,000 activity days for fishing, and 80,200 activity days for picnicking in 1990. These projections will need to be assessed against today's conditions to confirm their accuracy. This study will address the potential for an inflatable dam located in the Susquehanna River in the vicinity of Wilkes-Barre, Pennsylvania, which might be used to meet the projected needs for recreation opportunities at the existing project. As envisioned, the inflatable dam would back water up during low flows, creating a pool. During high flows, the dam would deflate and release the pool in order to avoid flooding.

Fiscal Year 1990 funds will be used to initiate a reconnaissance study at full Federal expense. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance study to determine the need for detailed studies, to obtain local cost sharing, and to develop a plan of study for the feasibility phase. The reconnaissance study is scheduled to be completed in July 1991.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
VIRGINIA					
Upper James River Basin, VA & WV	250,000	0	119,000	131,000	0

The James River Basin is located in the heart of Virginia and drains approximately 10,000 square miles or about 25 percent of the state. The portion which is being considered in this study encompasses Lynchburg, Virginia and upstream areas including a small portion of West Virginia. The purpose of this study is to determine if any improvements for urban flood control and related purposes are feasible at this time.

Within the study area, substantial basin-wide flood damages were experienced on three occasions since 1969. The most recent flooding occurred in November 1985 as a result of tropical storm Juan which caused estimated damage $230,000,000 throughout the entire basin including $20,000,000 at Covington, $10,000,000 at Glasgow, and $85,000,000 at Lynchburg. Two other events, in August 1969 and June 1972, were hurricane related with flood losses estimated at $103,000,000 and $92,000,000, respectively. Over 150 people have lost their lives in these three storms. Subsequent to each event, a national disaster was declared for some Upper James River areas. The only major flood control project in this area is Gathright Dam on the Jackson River which controls a drainage area of 345 square miles. As a result of these events, local interests are seeking measures to alleviate future problems. Active support of the study is anticipated from the James River Basin Association, a proponent group based at Lynchburg, Virginia. The Commonwealth of Virginia, by letter dated 5 November 1987, has indicated support of the study. The state is fully aware of their cost-sharing requirements for the feasibility-phase study.

The study will consider structural and nonstructural measures, including major works such as multipurpose reservoirs. Fiscal Year 1990 funds are being used to initiate the reconnaissance study at full Federal expense. The funds requested in Fiscal Year 1991 will be used to complete the reconnaissance study. The reconnaissance study is scheduled for completion in June 1991.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Subtotal Flood Damage Prevention Studies - Continuing	3,508,000	975,000	1,116,000	828,000	589,000

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
c. ShorelineProtectionStudies: The amount of $898,000 is requested in Fiscal Year 1991 to complete two shoreline protection studies and continue one shoreline protection study.					
DELAWARE					
Delaware Bay Coastline, DE & NJ	450,000	0	95,000	$355,000	0

The study area is located along portions of the Delaware and New Jersey shorelines of the Delaware Bay. Approximately 60 miles of shoreline will be investigated for two areas, Cape Henlopen to the Chesapeake and Delaware Canal in the state of Delaware and Cape May Point to the Salem River in the state of New Jersey. This study will evaluate all adverse impacts associated with storm damages along the shoreline and determine the costs and benefits of potential Federal projects.

The Delaware Bay coast has a long history of severe erosion subjecting shoreline properties to storm damage from wave attack and tidal inundation which has caused loss of lives, severe economic losses, and social disrupton. Comparison of early shoreline charts show continual erosion and accretion of shoreline over the past 111 years of record, resulting in substantial quantities of material lost, thereby narrowing and lowering the beaches. The areas where specific long term erosion problems have occured are Roosevelt Inlet/Lewes Beach, and Mispillion Light in Delaware and Elsinboro, Pierces Point and Villas in New Jersey with erosion rates estimated as high as 6 feet per year. Major storms occurred in August 1933, November 1950, March 1962 and March 1984. The coastal storm of March 1962 resulted in the loss of nine lives, physical damage to 1,251 residences and 16 businesses, and economic losses estimated to be $5,400,000 at that time.

The study is strongly supported by the local sponsors, the State of New Jersey Department of Environmental Protection, and the State of Delaware Department of Natural Resources and Environmental Control. They have expressed their support for this study and a willingness to cost share the feasibility study phase by letters dated June 24, 1987 and August 13, 1989, respectively.

Fiscal Year 1990 funds are being used to initiate the reconnaissance study. The funds requested for Fiscal Year 1991 will be used to complete the study. The reconnaissance study is scheduled to be completed in December 1991.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Delaware Coast from Cape Henlopen to Fenwick Island	750,000	0	357,000	393,000	0

The study area is located along the entire 25 mile Atlantic Ocean coast of Delaware which includes all of the State's ocean frontage and lies entirely in Sussex County. The purpose of the study is to investigate shore protection and hurricane damage problems and to consider potential solutions.

The Delaware coast has a long history of severe erosion which has caused significant economic losses, loss of lives, extensive flood damages, and social disruption. Comparison of early shoreline charts show continual erosion and accretion of shorelines over a 137 year period resulting in a net shoreline erosion rate of approximately 4 feet per year. The loss of substantial quantities of material has narrowed and lowered the beaches, subjecting public and private property to storm damage from wave attack and tidal inundation. Storms of record that have caused significant damage occurred in August 1933, September 1944, and March 1962. The March 1962 coastal storm caused damage to 1,932 residences and 85 businesses along the Atlantic coastline. The total damage to the entire study area was $16,700,000 (1962 prices). In addition, winter "north easters" often buffet the coastline resulting in erosion and associated losses. In recent years, the most notable of these occurred in December 1974, October 1977, March 1984, and March 1989.

The State of Delaware Department of Natural Resources and Environmental Control by letter dated July 22, 1988 has expressed strong support for the study and a willingness to cost share.

The funds requested for Fiscal Year 1990 are being used to initiate a reconnaissance study to determine the need for detailed studies, to obtain local cost sharing, and to develop a plan of study for the feasibility phase study. The funds requested in Fiscal Year 1991 will be used to complete the reconnaissance study. The reconnaissance study is scheduled for completion in March 1992.

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
NEW YORK					
Long Beach Island	1,135,000	400,000	180,000	150,000	405,000

The study area encompasses the Atlantic Coast of Long Island, New York from Jones Inlet to the East Rockaway Inlet. The purpose of the study is to determine if there is any Federal interest in the restoration and protection of the shore of Long Beach Island against erosion and from ocean storm damage.

The study area has experienced substantial beach erosion which has exposed the shore to storm damage. Damaging storms occurred in 1950, 1953, 1960, 1962 and 1984. A recurrence of the storm of September 1960, Hurricane Donna, which forced the evacuation of over 300 families would cause damages of $17.0 million (October 1989 prices). The New York State Department of Environmental Conservation and the City of Long Beach, New York have indicated they will be the local sponsors. They support the study and fully understand the local cost-sharing responsibility for the feasibility phase.

The study considers structural measures, including beaches, dunes and other protective measures for storm damage protection between Jones Inlet and East Rockaway Inlet. The recently completed reconnaissance study found that it is economically justified to provide storm damage protection to Long Beach Island and recommended proceeding with a cost-shared feasibility study. The feasibility study will consider improvements only for the City of Long Beach due to lack of local cooperation from the other communities. Fiscal Year 1990 funds are being used to initiate the feasibility phase of the Federal Study including data gathering, surveys and borrow area investigations. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase including initiation of economic and engineering analyses, and preliminary environmental impact investigations. The cost of the feasibility phase is $1,470,000 or $470,000 greater than the estimate last presented. The revised estimates of study cost and schedule are due primarily to the findings of the reconnaissance study and a delay in initiating the feasibility study while the State and City work out a

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Long Beach Island	(cont'd)				

mutually acceptable agreement for the non-Federal financing plan. The cost of the feasibility phase is shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$1,870,000
Reconnaissance Phase (Federal)	400,000
Feasibility Phase (Federal)	735,000
Feasibility Phase (Non-Federal)	735,000

The reconnaisance phase was completed in July 1989. The feasibility study is scheduled for completion in March 1994.

Subtotal Shoreline Protection Studies - Continuing	2,335,000	400,000	632,000	898,000	405,000

d. Special Studies: None

e. Comprehensive Studies: None

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Study	Total Estimate Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

f. Project Review Studies: The amount of $373,000 is requested in Fiscal Year 1991 to continue two project review studies.

VIRGINIA

Study	Total Estimate Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Atlantic Intracoastal Waterway - Bridge at Great Bridge	650,000	0	143,000	223,000	284,000

The Atlantic Intracoastal Waterway is a naturally protected navigation route which generally parallels the Atlantic coast between Norfolk, Virginia and the St. John's River in Florida. The waterway's route intersects several existing highways. The construction, operation and maintenance of the bridges at many of these intersections is the responsibility of the Corps of Engineers. One such intersection is located at Great Bridge in Chesapeake, Virginia. The present bridge, opened to traffic in August 1943, is a double-swing, dual-lane highway bridge which enables Virginia Route 168 traffic to cross the Albemarle and Chesapeake Canal. The bridge, when built, was quite adequate for serving a country road through a quiet rural area. Now, however, the bridge connects two sections of a heavily-traveled, multi-lane highway serving busy commercial urban centers. It is seriously overloaded, carrying almost double its theoretical maximum capacity of 15,000 vehicles per day. Navigation is adversely affected due to restrictions on bridge openings. Updating of the mechanical and electrical equipment is now needed and the bridge has been posted for 13 tons. The study will be directed toward evaluating alternatives for replacing or modifing the existing bridge and turning over any new bridge to local interests.

A reconnaissance level study was accomplished in 1986 using Operations and Maintenance funds. Fiscal Year 1990 funds are being used to initiate the project review study. The funds requested in Fiscal Year 1991 will be used to continue the study with emphasis upon development of cost estimates and designs for alternative plans. The City of Chesapeake, Virginia has indicated they would be willing to cost share in the construction and subsequent operation and maintenance or assume full ownership of a replacement bridge depending on the outcome of the study. This study is scheduled for completion in December 1992.

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 North Atlantic Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
WEST VIRGINIA					
Jennings Randolph Lake - Reallocation, WV & MD	469,000	0	150,000	150,000	169,000

The existing Jennings Randolph Lake project is located in Garrett County, Maryland, and Mineral County, West Virginia, on the North Branch of the Potomac River about 8 miles above its confluence with the Savage River at Bloomington, Maryland. In addition to providing flood damage protection, the project provides water supply for meeting municipal and industrial needs along the North Branch and also contributes to meeting water supply requirements in the Washington Metropolitan Area. Increasing population and economic growth in the Potomac River basin are causing severe demands on the basin's water resources. Future drought conditions will result in a marked reduction in natural stream flow in the Potomac River and freshwater inflow to the Chesapeake Bay. To address this concern, the State of Maryland requires that consumptive users of water address low flow augmentation in the development of new facilities. The State has indicated interest in storage reallocation at the Jennings Randolph Lake project to meet water supply and consumptive use needs including those associated with construction of a power generating facility and a solid waste incinerator along the Potomac River at Dickerson, in Montgomery County, Maryland. In addition, the water supply utilities in the Washington, DC area have expressed interest in additional water supply storage to meet their future needs. The reconnaissance level report is confirming that reallocation of storage up to 18,200 acre-feet at Jennings Randolph is both a cost-effective and environmentally acceptable solution to meet these needs.

The objective of this study is to examine the feasibility of reallocating existing storage at Jennings Randolph Lake. The study is strongly supported by the State of Maryland, the Interstate Commission on the Potomac River Basin, and the Potomac Electric Power Company (PEPCO) who are fully aware of their cost-sharing requirements for the feasibility phase study. The State, PEPCO, and Montgomery County emphasized the need for the study by letters dated 5 October 1989, 26 May 1988, and 7 September 1989, respectively.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Jennings Randolph Lake - Reallocation, WV & MD	(cont'd)				

Fiscal Year 1990 funds are being used to initiate the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility study, including design, cost estimates, coordination, and water quality analyses. The estimated cost of the feasibility phase is $938,000 or $138,000 greater than the estimate last presented to Congress. The revised estimate is based on the results of the recently completed reconnaissance level study. The cost of the feasibilty study is being shared on a 50-50 precent basis by the Federal Government and the local sponsor. Up to one half of the non-Federal share may be in-kind services. A summary of study cost is as follows:

Total Estimated Study Cost	$938,000
Reconnaissance Phase (Federal)	0
Feasibility Phase (Federal)	469,000
Feasibility Phase (Non-Federal)	469,000

The reconnaissance phase is scheduled for completion in December 1989. The feasibility study is scheduled for completion in March 1993.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Subtotal Project Review Studies - Continuing	1,119,000	0	293,000	373,000	453,000
TOTAL SURVEYS - Continuing	18,312,000	8,584,000	3,006,000	3,301,000	3,421,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

3. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - NEW

a. Navigation: None

b. Flood Control: The amount of $300,000 is requested in Fiscal Year 1991 to initiate one flood control PED activity.

PENNSYLVANIA

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Lackawanna River	2,000,000	0	0	300,000	1,700,000

The Lackawanna River basin drains 346 square miles in northeastern Pennsylvania, mostly in Lackawanna County. The lower half of the drainage area contains heavy urban development that grew around the anthracite coal mining industry. As this activity has decreased, a more diverse industrial economy has developed. Included in this area are the City of Scranton, numerous small communities, and key transportation routes. These areas have been subject to frequent flooding, the most recent being in September 1985 and March 1986. A Presidential disaster declaration of the area followed the September 1985 flood when an estimated $16 million in damages was experienced in the study area at Scranton and Olyphant. The main stem, as well as tributary streams of the Lackawanna River, were major problem areas. Although two Federal flood control dams, one Federal local protection project and several State local protection projects have been constructed in this watershed, flood problems persist. A feasibility report will be completed in May 1991. The recommended project estimated, to cost between $3 and $14 million, includes construction of levees and channel improvements to protect Scranton and Olyphant. The average annual benefits range from $350,000 to $1,420,000, all for flood control, based on the latest evaluation approved in February 1988 at 1987 price levels. The benefit cost ratios range from 1.1 to 1.3.

Study	Total Estimate Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	

Consistant with the cost sharing and financing concepts enacted by the Water Resources Development Act of 1986, local interests are required to provide lands, easements, and rights-of-way, including relocations; pay a portion of the costs allocated to flood control so that the total contribution of the local interests is equal to 25 percent of the cost allocated to flood control; and bear all costs of operation, maintenance, and replacement of flood control facilities.

Fiscal Year 1991 funds will be used to prepare a project management plan and initiate surveying and mapping. This preconstruction engineering and design effort is scheduled for completion in November 1994.

Subtotal Flood Control Activities - New	2,000,000	0	0	300,000	1,700,000

c. ShorelineProtection: None

d. MultiplePurposePower: None

TOTAL PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES - NEW	2,000,000	0	0	300,000	1,700,000

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Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

4. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - CONTINUING

a. Navigation: The amount of $250,000 is requested in Fiscal Year 1991 to continue two navigation PED activities.

NEW JERSEY

Salem River	450,000	0	107,000	150,000	193,000

Salem River is a tributary of the Delaware River located approximately 50 miles southwest of the City of Philadelphia. The existing 12-foot deep Federal project varies in width from 100 to 150 feet and provides for an entrance channel from the Delaware River to a fixed highway bridge in Salem, New Jersey, a distance of about five miles. These dimensions do not provide adequate depths or widths to permit efficient transit of vessels necessitating costly shipping practices including lightloading, waiting for high tides and use of smaller ships than terminal facilities can accommodate. The problem is expected to worsen as the commercial navigation fleet expands. The plan of improvement calls for deepening to 18 feet mean low water, widening to 180 feet, providing a turning basin, partial channel realignment to increase vertical clearance under a power line and minimize dredging costs. The project is authorized under Section 859 of the Water Resources Development Act of 1986 which provides for a project depth of 20 feet subject to the recommendation of the Secretary of the Army. The project justification is based on traffic averaging 163,000 tons with commodities consisting of general cargo, grain, scrap iron and perishables. The local sponsor is the City of Salem Municipal Port Authority which by a letter dated 8 December 1988, indicated its intent to comply with the cost sharing provisions of Water Resources Development Act of 1986. The estimated project construction cost is $16,700,000. The average annual benefits amount to $3,120,000, all for transportation savings, and based on the draft feasibility report dated September 1988 at June 1988 prices. The benefit-cost ratio is 1.6 to 1.

The project is authorized for construction by the Water Resources Development Act of 1986, with the following cost sharing requirement: local interests will be required to provide lands, easements, rights-of-way, and relocations necessary for the construction and subsequent maintenance including the prorated costs of using existing and future Federal disposal areas including retaining works, bear all costs of terminal facilities and dredging in berthing areas, presently estimated at $5,600,000; pay 10 percent of cost allocated to general

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

Salem River (cont'd)

navigation during construction, presently estimated at $1,100,000; and pay an additional 10 percent of costs allocated to general navigation, less a credit for the value of lands, easements, rights-of-way, relocations, and dredged material disposal areas, within a period of 30 years following completion.

Fiscal year 1990 funds will be used to initiate preconstruction engineering and design, including development of a plan of action and initiation of technical and environmental studies. The funds requested for Fiscal Year 1991 will be used to continue the preconstruction engineering and design effort including the General Design Memorandum. This preconstruction engineering and design effort is scheduled for completion in March 1993.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 North Atlantic Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Delaware River, Philadelphia, PA to Trenton, NJ (Tioga Marine Terminal)	300,000	20,000	129,000	100,000	51,000

The project is located in the Delaware River opposite the Tioga Marine Terminal, Philadelphia, Pennsylvania. Current depths between the 40-foot Delaware River channel and 22-28 foot depths in the berthing areas prevent efficient movement of vessels. A feasibilty report was completed in FY 1974. The recommended project would increase efficiency at the terminal and help increase the competitive standing of the facilities for break bulk and containerized general cargoes. The project consists of dredging a turning area to a depth of 36 feet adjacent to the existing Delaware River channel and maintenance dredging of a non-Federally constructed maneuvering area and turning basin. The maneuvering area is approximately 6000 feet long with an average width of 600 feet and the turning basin is an arc shaped area with a length of 1300 feet along the Delaware River channel. The estimated project construction cost is $2,620,000. The average annual benefits amount to $4,280,000, all for transportation savings, and based on the Senate Document 95-88 dated October 1975 at July 1972 prices. The benefit cost ratio is 10.4 to 1.

The project is authorized for construction in accordance with Section 201 of The Water Resources Act of 1976. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986; local interests are required to provide lands, easements, rights-of-way, and relocations necessary for the construction and subsequent maintenance including the prorated costs of using existing and future Federal disposal areas including retaining works, bear all costs of terminal facilities and dredging in berthing areas; pay 25 percent of cost allocated to deep draft navigation during construction, presently estimated at $660,000; and pay an additional 10 percent of costs allocated to deep draft navigation, less a credit for the value of lands, easements, rights-of-way, relocations, and dredged material disposal areas within the period of 30 years following completion.

The funds requested for Fiscal Year 1990 are being used to continue work on the General Design Memorandum. Fiscal Year 1991 funds will be used to complete the draft General Design Memorandum. The preconstruction engineering and design effort is scheduled for completion in May 1992.

Subtotal Navigation Activities - Continuing	750,000	20,000	236,000	250,000	244,000

[illegible] JAN 1990

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

b. Flood Control: The amount of $10,010,000 is requested in Fiscal Year 1991 to continue nine flood control PED activities.

NEW JERSEY

Lower Saddle River, Bergen County	3,900,000	1,125,000	857,000	590,000	1,328,000

The study area is located along the Saddle River in the communities of Garfield, Wallington, South Hackensack, Lodi, Saddle Brook, Rochelle Park, Paramus and Fair Lawn, New Jersey. Major flooding in recent years has adversely affected over 2,000 residential, commercial and industrial establishments. The plan of improvement was recommended in the Interim Report on Flood Protection Feasibility for the Lower Saddle River, Bergen County, New Jersey which was completed in September 1984. This report was prepared in partial compliance with Section 101(a) of the Water Resources Development Act of 1976 (PL 94-587) which authorized a Phase I Advanced Engineering and Design Study for the Passaic River Basin. The recommended plan for the Lower Saddle River includes 5.2 miles of channel modification along the Saddle River and 1.7 miles of channel modification along Sprout Brook. A total of 22 bridges would require modification. These improvements would provide protection against a 150 year flood event to over 2,500 structures. The estimated project construction cost is $50,600,000. The average annual benefits amount to $5,583,000, all for urban flood damage protection, based on the latest evaluation approved in the Interim Report on Feasibility dated August 1984 at January 1984 prices. The benefit-cost ratio is 1.6 to 1.

The Lower Saddle River, Bergen County, New Jersey project is authorized for construction by the Water Resources Development Act of 1986, with the following cost sharing requirements: local interests will be required to provide lands, easements, rights-of-way and relocations, presently estimated at $12,270,000; pay 5 percent of the cost allocated to flood control, presently estimated at $2,530,000; and bear all costs of operation, maintenance and replacement of flood control facilities, presently estimated at $111,000 annually.

Fiscal Year 1990 funds are being used to continue preconstruction engineering and design, including completion of subsurface data collection; analysis of subsurface data; development of tentative treatment plans for culturally sensitive sites; preparation of a cultural resources preliminary case report; continuation of

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Lower Saddle River, Bergen County (cont'd)					

project design; initiation of project cost estimates; structural stability analysis; determination of real estate requirements; report preparation; and coordination. The funds requested for Fiscal Year 1991 will be used to continue preconstruction engineering and design, including finalizing the project design and cost estimates; development of a construction schedule; preparation of a draft local cooperation agreement; finalizing and circulating the cultural sites Memorandum of Agreement for execution; preparation of the General Design Memorandum; and coordination. This preconstruction engineering and design effort is scheduled for completion in September 1993.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Molly Ann's Brook at Haledon, Prospect Park and Paterson	1,900,000	239,000	333,000	420,000	908,000

The project area, which is approximately 12 miles west-northwest of New York City, is located in Haledon, Prospect Park and Paterson, New Jersey along Molly Ann's Brook from the mouth below Totowa Avenue in Paterson upstream for 2.8 miles to Church Street in Haledon. Major flooding in recent years has adversely affected about 520 residential, commercial and industrial establishments in the 100 year floodplain. The plan of improvement was recommended in the Interim Report on Flood Protection Feasibility for Molly Ann's Brook which was completed in December 1984. This report was prepared in partial compliance with Section 101(a) of the Water Resources Development Act of 1976 (PL 94-587) which authorized a Phase I Advanced Engineering and Design Study for the Passaic River Basin. The recommended plan is a modified channel with a total length of 14,730 feet which combines earthen and riprap lined trapezoidal channels with concrete flumes and a drop structure. The trapezoidal channel would have a 25 foot bottom width, while the flume above and below the drop structure would be 25 and 30 feet wide, respectively. Eleven bridges would be replaced and one building would be removed. These improvements would provide protection against a 50 year flood event. The estimated project construction cost is $29,200,000. The average annual benefits amount to $2,130,000, all for urban flood damage protection and are based on the latest evaluation approved in the General Design Memorandum dated December 1984 at October 1984 prices. The benefit-cost ratio is 1.12 to 1.

The Molly Ann's Brook at Haledon, Prospect Park and Paterson, New Jersey flood control project is authorized for construction by the Water Resources Development Act of 1986. Local interests will be required to pay for lands, easements, rights-of-way and relocations not to exceed 50 percent of the entire project, presently estimated at $14,600,000; including a cash contribution of 5 percent, presently estimated at $1,460,000. In addition, local interests will bear all costs of operation, maintenance and replacement of flood control facilities, presently estimated at $33,000 annually.

Fiscal Year 1990 funds are being used to continue preconstruction engineering and design including the completion of topographic data collection and mapping; and collection of subsurface data; initiate preparation of a cultural resources analysis, project design and coordination. The funds requested for Fiscal Year 1991 will be used to continue the preconstruction engineering and design including completion of the project design for channel quanities, channel alignment, drop structure and flume, and cultural resources analysis; continue the remaining project design and coordination; and initiate the economic analysis and chemical testing analyses. The preconstruction engineering and design effort is scheduled for completion in October 1993.

29 JAN 1990

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 North Atlantic Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Passaic River Main Stem	27,500,000	750,000	3,900,000	5,000,000	17,850,000

The Passaic River Basin encompasses 935 square miles in northern New Jersey and southeastern New York State. Eighty-four percent of the Basin lies in New Jersey, including all or parts of Passaic, Bergen, Morris, Essex, Sussex, Hudson, Union, and Somerset Counties, while sixteen percent of the watershed lies in New York State, occupying parts of Rockland and Orange Counties. The watershed is elliptical in shape, 56 miles long and 26 miles wide, with its long axis running northeast-southwest. The Basin is drained by the Passaic River and its seven major tributaries: the Saddle, Pompton, Ramapo, Pequannock, Wanaque, Rockaway and Whippany Rivers. The main stem project area lies in New Jersey along the Passaic River from its mouth in Newark Bay, upstream for 58 miles to the Borough of Chatham and includes an additional 6.8 miles along the Pompton River and also the lower reaches of the Ramapo, Pequannock, Wanaque, Rockaway and Whippany Rivers. This floodplain comprises more than 80 square miles and 45 municipalities. The major flood damage areas lie along the Passaic River from downstream of Chatham to its mouth, along the entire Pompton Valley, and along the lower reaches of the other major tributaries.

The plan has been developed to protect over 30,000 structures in the critical flood problem area. The most severe recent flood occurred in April 1984, claiming 4 lives, with damages estimated at $389,400,000 (October 1989 prices). The entire Basin, or portions thereof, was declared a disaster area in 1968, 1971, 1972, 1973, twice in 1975 and in 1984. The recurrence of the October 1903 flood of record would cause damages of $1,941,000,000 (October 1989 prices).

The considered plan was prepared in partial compliance with Section 101(a) of the Water Resources Development Act of 1976 (PL 94-587) in accordance with the report of the Chief of Engineers, dated 18 February 1976.

The major elements of the considered plan are two tunnels, with the key being the 13.5-mile long, 39-foot diameter main tunnel, which will carry floodwaters from an inlet at the upper end of the Pompton River down to an outlet on the west bank of the Passaic River just upstream of its confluence with the Third River in Clifton. A 1.2-mile long, 22-foot diameter spur tunnel will convey Central Basin area floodwaters from an

29 JAN 1990

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Passaic River Main Stem	(cont'd)				

inlet just downstream of Two Bridges on the Passaic River, to an underground connection with the main diversion tunnel. The diversion tunnels and associated surface works are designed to protect against a 100 year flood event. A total of 5.9 miles of channel modifications will be required to direct the flows into the tunnel inlets, and the diversion tunnels will be augmented by some 37.3 miles of levees and floodwalls consisting of some 23.3 miles of levees and 14.0 miles of floodwalls. In addition, 5,350 acres of critical floodplain storage areas, including 5,200 acres of wetlands, will be purchased to preserve the natural floodplain storage and the level of protection afforded by the project. The estimated project construction cost is $1,190,000,000. The average annual benefits amount to $130,200,000, for urban flood and hurricane damage protection and recreation, based on latest evaluation approved in the Board of Engineers, Rivers and Harbors report, dated 23 July 1988, at October 1987 prices. The benefit-cost ratio is 1.5 to 1.

Consistant with the cost sharing and financing concepts enacted by the Water Resources Development Act of 1986, local interests are required to provide lands, easements, rights-of way and relocations, presently estimated at $101,300,000; pay 15 percent of all cost allocated to flood control, presently estimated at $175,500,000; so that the total contribution of the local interests is equal to 25 percent of the cost allocated to flood control; pay 3 percent of all cost allocated to hurricane and storm damage reduction, presently estimated at $31,000,000 so that the total contribution of the local interests is equal to 35 percent of the cost allocated to hurricane and storm damage reduction; pay one-half of the separable cost allocated to recreation, presently estimated at $2,200,000; and bear all costs of operation, maintenance and replacement of project facilities, presently estimated at $2,300,000 annually.

Fiscal Year 1990 funds are being used to continue preconstruction engineering and design, including completion of the design effort cost estimates, schedule and project management plan, and coordination; initiation of topographic mapping, subsurface testing and design activities. The funds requested for Fiscal Year 1991 will be used to continue preconstruction engineering and design including: topographic mapping, subsurface testing and foundation and materials analysis, hydrologic and hydraulic studies including WES physical modeling, cost engineering, fish and wildlife, cultural resources, economic, real estate, coordination and public involvement studies. This preconstruction engineering and design effort is scheduled for completion in September 1995.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 North Atlantic Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Ramapo River at Oakland	1,300,000	673,000	200,000	250,000	177,000

This study area is located along the Ramapo River in Oakland, Wayne and Pompton Lakes, New Jersey. Major flooding in recent years has adversely affected approximately 300 residential, commercial and industrial establishments. The plan of improvement was recommended in the Interim Report on Flood Protection Feasibility for the Ramapo River at Oakland, New Jersey, which was completed in October 1984. This report was prepared in partial compliance with Section 101(a) of the Water Resources Development Act of 1976 (PL 94-587) which authorized a Phase I Advanced Engineering and Design Study for the Passaic River Basin. The recommended plan for the Ramapo River at Oakland, New Jersey includes installation of gates at Pompton Lakes Dam and 6,800 feet of channel modification to the Ramapo River. These improvements would provide protection against a 40 year flood event to over 300 structures. The estimated project construction cost is $9,400,000. The average annual benefits amount to $734,700, all for urban flood damage protection, based on latest evaluation approved in the Interim Report on Flood Protection Feasibility, dated September 1984 at April 1984 prices. The benefit-cost ratio is 1.3 to 1.

The Ramapo River at Oakland, New Jersey, project is authorized for construction by the Water Resources Development Act of 1986, with the following cost sharing requirements: local interests will be required to provide lands, easements, rights-of-way and relocations presently estimated at $690,000, pay 18 percent of the cost allocated to flood control, presently estimated at $1,660,000, so that the total contribution of the local interests is equal to 25 percent of the cost allocated to flood control; and bear all costs of operation, maintenance and replacement of flood control facilities, presently estimated at $23,300 annually.

Fiscal Year 1990 funds are being used to continue preconstruction engineering and design, including initiation of collection and evaluation of subsurface data; preparation of a cultural resources survey report; hydraulic design; structural design; real estate activities; and coordination. The funds requested for Fiscal Year 1991 will be used to continue the General Design Memorandum including completion of the project design and cost-estimate, determining real estate requirements, determining the construction procedures and schedule; and coordination with the non-Federal sponsors to assure commitments of local cooperation. This preconstruction engineering and design effort is scheduled for completion in September 1992.

JAN 19

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 North Atlantic Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Raritan River Basin Green Brook Sub-Basin	12,900,000	4,628,000	934,000	2,000,000	5,338,000

The Green Brook Sub-Basin study area is located within the Raritan River Basin in north-central New Jersey in Middlesex, Somerset and Union counties. It drains approximately 65 square miles of primarily urban and industrialized area. On 28 August 1971 Hurricane Doria caused $22,200,000 in damages. Another major storm occurred on 2 August 1973 causing six deaths and resulting in $25,800,000 in damages. At October 1989 prices these damages would be $68,400,000, and $71,700,000 respectively. Hurricane Doria produced the maximum flood of record in the lower portion of the Green Brook Sub-Basin. A feasibility report was completed in FY 1980. The authorized improvements consists of approximately 19 miles of levees and floodwalls along Green Brook and its tributaries, including Stony Brook; 6 pumping stations; 40 bridge alterations; approximately 4.5 miles of channel modifications (widening and flume sections); and 2 dams and detention reservoirs. Non-structural and environmental features included in the plan are 9 property acquisitions, floodproofing of 33 structures and replanting of 75 to 100 acres in the project ponding areas. The State of New Jersey, the Green Brook Flood Control Commission, and local communities support the authorized plan. The estimated project construction cost is $292,000,000. The average annual benefits amount to $6,919,700 of which $6,545,500 are urban flood damage prevention and $374,200 for advance replacement of bridges basedon latest evaluation approved in the Feasibility Report dated August 1980 at January 1979 prices. The benefit-cost ratio is 0.8 to 1.

The project is authorized for construction by the Water Resources Development Act of 1986 with the following cost sharing requirements: local interests will be required to provide lands, easements, rights-of-way relocations estimated at $65,400,000; and pay 5 percent cash contribution, presently estimated at $14,600,000;and bear all costs of operation, maintenance and replacement of flood control facilities, presently estimated at $225,000 annually.

Fiscal Year 1990 funds are being used to continue preconstruction engineering and design including initiation of cost estimating procedures for the lower sub-basin; continue hydraulic/hydrology analyses and environmental investigations and complete the investigation of changed conditions in the upper Green Brook and Stony Brook sub-basins. The funds requested for Fiscal Year 1991 will be used to continue the preconstruction engineering and design including the hydraulic/hydrologic analyses and environmental investigations and initiate subsurface exploration and hydraulic design for the lower basin area. This preconstruction engineering and design effort is scheduled for completion in April 1995.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 North Atlantic Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
NEW YORK					
Westchester County Streams - Sheldrake River at Town of Mamaroneck	700,000	325,000	104,000	150,000	121,000

The Sheldrake River drains an area of about 6.2 square miles in southeast New York in Westchester County and drains into the Mamaroneck River. The problem area is located along the upper Sheldrake River in the Town of Mamaroneck. The Sheldrake River floodplain in the area encompasses about 32 acres of suburban residential property along both banks. The plan of improvement to be studied is one of three recommendations for flood control included in the interim report on the Mamaroneck, Sheldrake and Byram River Basins. The plan for the Town of Mamaroneck provides for a rectangular concrete channel, 12 feet wide and 1800 feet long, a stilling basin, a drop structure, and tie back levees at the upstream end of the project. These improvements will substantially reduce flood damages for approximately 115 residences in the Town of Mamaroneck. Damages of about $992,000 (October 1989 prices) from the 100 year frequency would be nearly eliminated under the recommended plans. The estimated project construction cost is $4,200,000. The average annual benefits amount to $320,000 for flood damage reduction and for advanced replacement of bridges based on the latest evaluation approved October 1977 at December 1976 prices. The benefit-cost ratio is 1.2 to 1.

The project is authorized for construction by the Water Resources Development Act of 1986 with the following cost sharing requirements: local interests, will be required to provide lands, easements, rights-of-way and relocations, presently estimated at $585,000; pay 12 percent of the costs allocated to flood control, presently estimated at $465,000, so that the total contribution of the local interests is equal to 25 percent of the costs allocated to flood control; and bear all costs of operation, maintenance and replacement of flood control facilities presently estimated at $6,800 annually.

Fiscal Year 1990 funds are being used to complete the detailed engineering and design studies for hydrology, hydraulics, surveying and mapping, and subsurface investigations; and initiate structural design and baseline cost estimates. The funds requested for Fiscal Year 1991 will be used to complete structural design, baseline cost estimates and the General Design Memorandum. The preconstruction engineering and design effort is scheduled for completion in July 1992.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
VIRGINIA					
Buena Vista	2,300,000	0	143,000	600,000	1,557,000

The Maury River drains an area of about 840 square miles in Virginia and empties into the James River. The Buena Vista flood plain (340 year) encompasses about 570 acres of mostly urban development on the left bank of the Maury River. The flooding problems are severe at Buena Vista with major storms occurring in 1936, 1969, and 1985. A recurrence of the August 1969 storm, the maximum flood of record, would cause damage in excess of $47 million to Buena Vista, Virginia based on 1989 prices. As a result of the flooding at Buena Vista in August 1969, the Corps accomplished an interim study under the James River Basin Review Authority. The report resulting from this study and a subsequent Phase I General Design Memorandum recommended the construction of a flood control project at Buena Vista consisting of an earthen levee, floodwall, and diversion and improved river channels. A bond issue that would have provided necessary items of local cooperation was rejected by the voters of Buena Vista in 1977 and led the Corps to inactivate the project. As a result of the 1985 storm, local interests requested the Corps to reevaluate the City's flood problems and in February 1986 the Phase I stage of advance engineering and design was resumed on the project. The reevaluation included a detailed analysis of the developmental changes in the flood plain since 1977, a compilation of data on the extent of flood damages as a result of the 1985 storm, and the reformulation of alternatives, including a review of the previously recommended plan of improvement. The feasibility report completed in January 1977 recommended a project to include a levee system to provide flood protection to 320 acres of Buena Vista. The estimated project cost is $45,400,000. The average annual benefits amount to $1,853,000, all for flood control, based upon the January 1977 feasiblity report at January 1976 prices. The benefit-cost ratio is 1.16 to 1.

The project is authorized for Phase I studies by the Water Resources Development Act of 1976. Consistent with the cost sharing and financing concepts enacted by the Water Resources Development Act of 1986, local interests will be required to provide lands, easements, right-of-ways and relocations, presently estimated at $2,400,000; pay 20 percent of the costs allocated to flood control, presently estimated at $9,000,000, so that the total contribution of local interest is equal to 25 percent of the cost allocated to flood control; and bear all costs of operation, maintenance and replacement of flood control facilities, presently estimated at $151,000 annually.

29 JAN 1990

Study	Total Estimate Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Buena Vista (cont'd)					

Fiscal Year 1990 funds will be used to initiate preconstruction engineering and design including preparation of detailed design estimates. Fiscal Year 1991 funds will be used to continue preconstruction engineering and design. This preconstruction engineering and design effort is scheduled for completion in January 1996.

WEST VIRGINIA

Moorefield	2,000,000	0	150,000	400,000	1,450,000

The Town of Moorefield is located in northeastern West Virginia at the confluence of the South Branch Potomac River and the South Fork of the South Branch Potomac River. The town has a history of flooding with major floods occurring in March 1936, February 1939, May 1942, June 1949, October 1972, and November 1985. The November 1985 flood devastated the area resulting in the loss of three lives and damages of $29.1 million. The flood also resulted in the condemnation of 135 homes and damages to industrial, commercial, and agricultural concerns within the community. A feasibility report will be completed in April 1990. Based on the draft feasibility report dated January 1990, the recommended project, estimated to cost $16,100,000, includes construction of a levee system to protect Moorefield. The average annual benefits amount to $1,722,000, all for flood control, at October 1988 prices. The benefit cost ratio is 1.2 to 1.

By letter dated 21 November 1989, the Town of Moorefield stated that it will be the local sponsor for the project. Consistent with the cost sharing and financing concepts enacted by the Water Resources Development Act of 1986, local interests are required to provide lands, easements, and rights-of-way, including relocations, currently estimated at $3,030,000; pay 6 percent of the cost allocated to flood control, presently estimated at $970,000; so that the total contribution of the local interests is equal to 25 percent of the cost allocated to flood control; and bear all costs of operation, maintenance, and replacement of flood control facilities, currently estimated at $67,000 annually.

Fiscal Year 1990 funds are being used to develop a project management plan and baseline cost estimate; and initiate hydrologic and hydraulic studies, economic and environmental studies and public involvement. The funds requested in Fiscal Year 1991 will be used to initiate surveying and mapping, foundation investigations, and continue hydrologic and hydraulic studies, economic and environmental studies and public involvement. The preconstruction engineering and design effort is scheduled for completion in March 1994.

Study	Total Estimate Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Petersburg	2,000,000	0	500,000	600,000	900,000

The City of Petersburg is located in northeastern West Virginia on both banks of the South Branch Potomac River. The city has experienced extensive flood damages on several occasions in past years. The city was devastated by flooding in November 1985 which represented the flood of record for the South Branch Potomac River at Petersburg. The flood caused damages estimated at $28,200,000 and demolished approximately 20 homes in the Petersburg area. Average flood depths of about seven feet inundated all buildings south of the river and affected about 30 percent of the buildings north of the river. A feasibility report is being completed in February 1990. Based on the feasibilty report January 1990, the recommended project, estimated to cost $20,300,000, includes construction of levees and channel improvements to protect Petersburg. The average annual benefits amount to $2,281,000, all for flood control, at October 1989 prices. The benefit cost ratio is 1.2 to 1.

By letter dated 8 December 1989, the Grant County Commission stated that the County will be the local sponsor for the project. Consistent with the cost sharing and financing concepts enacted by the Water Resources Development Act of 1986, local interests are required to provide lands, easements, and rights-of-way, including relocations, currently estimated at $5,270,000; pay 5 percent of the cost allocated to flood control, presently estimated at $1,0[illegible]0,000, so that the total contribution of the local interests is equal to 31 percent of the cost allocated to flood control; and bear all costs of operation, maintenance, and replacement of flood control facilities, currently estimated at $96,000 annually.

Fiscal Year 1990 funds are being used to develop a project management plan and baseline cost estimate and initiate surveying and mapping hydrologic and hydraulic studies, foundation investigations, economic and environmental studies and public involvement. The funds requested in Fiscal Year 1991 will be used to complete surveying and mapping and foundation investigations, and continue hydrologic and hydraulic studies, economic and environmental studies, and public involvement. The preconstruction engineering and design effort is scheduled for completion in June 1993.

Subtotal Flood Control Activities - Continuing	54,500,000	7,740,000	7,121,000	10,010,000	29,629,000

c. Shoreline Protection: The amount of $250,000 is requested in Fiscal Year 1991 to complete one shoreline protection PED activity.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
NEW YORK					
Atlantic Coast of New York City, Rockaway Inlet to Norton Point, NY (Coney Island)	1,900,000	1,135,000	515,000	250,000	0

Coney Island is located on the south shore of Long Island in Brooklyn (Kings County), New York, approximately nine miles south of the Battery, New York City. The study area comprises 3 miles of oceanfront extending through the communities of Coney Island, Brighton Beach and a section of Sea Gate, New York. Residential and commercial developments have been damaged from wave attack and inundation caused by storms. Additional, erosion of the shoreline is undermining the shoreline structures. In March 1962, a severe northeast storm caused breaching and failing of the beach and shore protection structures with damages estimated at $18,000,000. A recurrence of the March 1962 storm would cause damages approximating $56,000,000 (October 1989 prices). The authorized plan provides for beach erosion control by restoring the Coney Island public beach up to 250 feet beyond the historic shoreline, at an elevation of 8 feet above sea level datum, extending the westerly terminal groin to a length of 910 feet, and construction of a 600 foot terminal groin at the eastern end of the restored beach. The groins would include walkways and railings for recreational fishing. The authorized project also includes a fillet of beach fill extending approximately 2300 feet into the Sea Gate community west of the terminal groin at West 37th street. The estimated project construction cost is $143,000,000 which includes 50 years of periodic nourishment. The average annual benefits are $10,900,000 which are attributable to storm damage prevention and recreation, based on latest evaluation approved in a Reanalysis Report dated February 1988 at October 1987 prices. The benefit-cost ratio is 2.5 to 1.

The project is authorized for construction by the Water Resources Development Act of 1986 with the following cost sharing requirements: local interests will be required to provide lands, easements, rights-of-way, and relocations; pay a cash contribution of the costs allocated to storm damage prevention and recreation, so that

Study	Total Estimate Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Atlantic Coast of New York City, Rockaway Inlet to Norton Point, NY (Coney Island)	(cont'd)				

the total contribution of local interests is equal to 35 percent of the costs allocated to storm damage prevention and 50 percent of the costs allocated to recreation; and provide all cost of operation, maintenance and replacement of storm damage prevention and recreation facilities.

Fiscal Year 1990 funds are being used to complete the coastal baseline studies and surveys, the coastal process and geomorphic studies, the project damage relationships for alternatives, and the sampling from the borrow areas; and to continue the planning, engineering and design analyses and the preparation of the General Design Memorandum. The funds requested for Fiscal Year 1991 will be used to continue preconstruction engineering and design and cost estimating efforts; complete the preparation of the General Design Memorandum; and initiate the negotiations for the local cooperation agreement. This preconstruction engineering and design effort is scheduled for completion in December 1991.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 North Atlantic Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Subtotal Shoreline Protection Activties - Continuing	1,900,000	1,135,000	515,000	250,000	0
d. Multiple Purpose Power: None					
TOTAL - PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - CONTINUING	57,150,000	8,915,000	7,872,000	10,510,000	29,873,000
GRAND TOTAL - SURVEYS AND PRESCONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES	77,462,000	17,479,000	10,878,000	14,111,000	34,994,000

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Barnegat Inlet, New Jersey - Modification (Continuing)

LOCATION: Barnegat Inlet is located on the Atlantic Coast of New Jersey in Ocean County, approximately 32 miles northeast of Atlantic City. It lies partially in the municipality of Barnegat Light Borough and partially in Island Beach State Park.

DESCRIPTION: The plan of improvement consists of a new South Jetty, channel dredging and jetty sport fishing walkway, all of which are scheduled work.

AUTHORIZATION: The Rivers and Harbors Act of 1935 modified by the Acts of 1937 and 1946, the Supplemental Appropriations Act of FY 1985, and the Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: The RBRCR is not applicable since the remaining work is needed to provide a channel suitable for navigation.

TOTAL BENEFIT-COST RATIO: Not applicable.

INITIAL BENEFIT-COST RATIO: Not applicable.

BASIS OF BENEFIT-COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA			Accumulated Percentage of Estimated Fed. Cost
Estimated Total Appropriation Requirement		$31,100,000	
Future non-Federal Reimbursement		1,800,000	
Estimated Federal Cost (Ultimate)		29,300,000	
Estimated non-Federal Cost		15,960,000	
Cash Contribution	$13,340,000		
Other Costs	820,000		
Reimbursements	1,800,000		
Total Estimated Project Cost		$45,260,000	
Allocations to 30 September 1989		$17,003,000	
Conference Allowance for FY 1990		7,000,000	
Allocation for FY 1990		7,000,000 1/	
Allocations through FY 1990		24,003,000	77
Allocation Requested for FY 1991		5,537,000	95
Scheduled Balance to Complete after FY 1991		1,560,000	100
Unscheduled Balance to Complete after FY 1991		0	

STATUS: (1 Jan 90)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	52	Dec 1991

PHYSICAL DATA:

New South Jetty:	4,270 linear foot rubble mound structure with a top elevation of 8' above mean low water.
Channel:	11,300 linear feet, 300 feet wide at a depth of 10 feet below mean low water.
Jetty Sport Fishing:	Walkway along new jetty with steel railing for safety.

1/ Reflects reduction of $675,000 assigned for savings and slippage, $ 72,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $747,000 reprogrammed to the project.

DIVISION: North Atlantic DISTRICT: Philadelphia 29 JAN 1990 Barnegat Inlet, NJ

JUSTIFICATION: The project will modify the existing Federal navigation project at Barnegat Inlet. The existing Federal project at the Inlet, which was completed in 1940 at a total cost of $749,000, has failed to maintain a fully suitable channel for navigation. The proposed modification consists of a new realigned south jetty and a wider and deeper navigation channel. Although the existing project has been substantially successful—some 800,000 transits are made annually—the problems of instability and hazardous navigation due to wave activity and channel shoaling create limitations for the present project, making navigation dangerous at times. The only approach to the Inlet is from the north along Island Beach, taking vessels within 100 yards of the north jetty. As a result of shoaling, breakers occur across the entire outer bar thereby exposing all vessels to impact by severe waves as they enter the inlet entrance. Vessels smaller than 25 feet are in constant jeopardy of being capsized or pushed across the north jetty. Larger vessels face hampered navigating conditions. During the period 1970-1989 the U.S. Coast Guard assisted over 7,900 vessels at Barnegat Inlet. As a result of capsizings at the Inlet, during the period 1979-1989, 47 lives were lost . Since completion of the existing project in 1940, the Federal Government has expended approximately $8 million attempting to stabilize the condition. These maintenance activities have produced very short term improvements. With the structural modifications (the new south jetty and the improved navigation channel), the shoaling in the immediate area of the inlet entrance would be reduced enabling the navigation project to function in a fully suitable and safe manner. Without structural modification (new south jetty), the problems of instability and hazardous navigation due to wave activity and channel shoaling will continue to exist. The estimated average annual benefits are as follows:

Annual Benefits	Amount (1 July 1981)
Reduction of Vessel Damage	58,000
Headboat and Charter Sport Fishing	333,000
Commercial Fishing	1,526,000
Jetty Sport Fishing	124,000
Recreation Boating	4,398,000
TOTAL	$6,439,000

FISCAL YEAR 1991: The requested funding will be applied as follows:

Complete Jetty Construction	950,000
Initiate dredging	4,077,000
Initiate Jetty Sport Fishing	130,000
Engineering and Design	90,000
Supervision and Administration	290,000
TOTAL	$5,537,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments during construction and reimbursements	Annual operations maintenance and replacement costs
Provide lands, easements, rights-of-way, and dredged material disposal areas	$ 820,000	
Pay one-half of the separable and joint costs allocated to recreational navigation and bear all costs of operation, maintenance, and replacement of recreational navigation facilities.	11,175,000	0 1/
Pay 10 percent of the costs allocated to general navigation during construction	2,165,000	0
Pay an additional 10 percent of the costs allocated to general navigation within a period of 30 years following completion of construction (which is partially offset by a credit allowed for the value of lands, easements, rights-of-way, relocations, and dredged material disposal areas).	1,800,000	
Total non-Federal First Cost	$15,960,000	

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

1/ See "OTHER INFORMATION" paragraph.

STATUS OF LOCAL COOPERATION: A local cooperation agreement (LCA) was executed on 19 May 1986. A modification to the LCA was executed on 20 March 1987 and reflected the provisions of the Water Resources Development Act of 1986. The current non-Federal estimated cash contribution of $13,340,000 for scheduled work reflects a decrease of $501,400 from the estimate of $13,841,400 included in the Local Cooperation Agreement which reflects the reimbursement that was included in the Agreement's contributed amount and offset by contract award, post contract awards, other adjustments, and price level increase.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $31,100,000 is an increase of $1,440,000 from the last estimate ($29,660,000) presented to Congress (FY 1990). This change includes the following items.

Item	Incremental Change
Price escalation on Construction Features	- $ 135,000
Post Contract Awards and Other Estimating Adjustments	+ 1,575,000
TOTAL	+ $ 1,440,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A Final Environmental Impact Statement was filed with CEQ on 8 October 1976. A Supplemental Information Report to the Final EIS was completed in September 1981 as part of Legislative Phase I studies fo the project and filed with EPA on 9 July 1982. In accordance with Section 7 of the Endangered Species Act of 1973, the District submitted a biological assessment to the U.S. Fish and Wildlife Service on 22 August 1986 regarding the Piping Plover (Charadrius Melodus), a bird species which was listed as endangered in January 1986. A biological opinion, dated 1 December 1986 expressing a "no jeopardy" decision was received from the U. S. Fish and Wildlife Service and coordination i continuing.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1984 and funds to initiate construction were appropriated in FY 1985. The operation and maintenance for this project will remain a Federal responsibility since the work proposed will result in a decrease in the Federal O&M requirements.

APPROPRIATION TITLE: Construction General Channels and Harbor (Navigation)

PROJECT: Fire Island Inlet to Jones Inlet, New York (Continuing)

LOCATION: Fire Island Inlet is located approximately 40 miles east of the Battery in New York City. The material dredged from the Inlet will be placed in the vicinity of Gilgo Beach which lies along the Atlantic Ocean shoreline of New York State in Suffolk County. The beach is located approximately 6 miles east of Fire Island Inlet and extends 14,000 feet to the westerly end of Gilgo Beach.

DESCRIPTION: The project is a multi-purpose beach erosion control and navigation project. The recommended plan of action is the continuation of construction of the authorized combined purpose project because of serious erosion problems threatening the shoreline. This involves placing approximately 1,000,000 cubic yards of sand every two years from the inlet along Gilgo Beach to serve as a feeder beach for the area.

AUTHORIZATION: 1958 Rivers and Harbors Act and 1962 Rivers and Harbors Act.

REMAINING BENEFIT-REMAINING COST RATIO: 2.0 to 1 at 8 5/8 percent

TOTAL BENEFIT-COST RATIO: 2.0 to 1 at 8 5/8 percent

INITIAL BENEFIT COST RATIO: 1.4 to 1 (FY1973) at 3 1/4 percent

BASIS OF BENEFIT-COST RATIO: Operations and Maintenance Proposal for Fire Island Inlet, dated March 1988 at October 1988 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM PCT. OF EST FED. COST	STATUS (1 JAN 90)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$218,300,000		Periodic Nourishment	0	FY 2041
Estimated Non-Federal Cost		$58,100,000				
Cash Contrib.	$58,100,000					
Other Cost	0					
Total Estimated Project Cost		$276,400,000				
Allocations to 30 September 1989		$9,300,000				
Conference Allowance for FY 1990		0 1/				
Allocation for FY 1990		0 1/				
Allocations through FY 1990		$9,300,000				
Allocation Requested for FY 1991		$3,700,000	6%			
Scheduled Balance to Complete after FY 1991		$205,300,000				
Unscheduled Balance to Complete after FY 1991		0				

PHYSICAL DATA

The project consists of providing a navigation channel and hydraulically placing the dredged material which is 90% sand along the shoreline in the vicinity of Gilgo Beach, New York.

1/ $1,557,000 O&M Funds were allocated in FY 1990

Division: North Atlantic District: New York

29 JAN 1990

FISCAL YEAR 1991: The requested amount will be applied as follows:

Complete Periodic Nourishment 1/	$3,300,000
Engineering and Design	$30,000
Supervision and Administration	$370,000
Total Cost	$3,700,000

1/ $1,557,000 O&M funds will be used to initiate nourishment cycle in FY 1990

NON-FEDERAL COSTS: In accordance with the cost sharing and financial concepts reflected in the Water Resources Development Act of 1986, the Non-Federal sponsor must comply with the Requirements listed below

	Payments During Construction & Reimbursement	Annual Operation Maintenance and Replacement Costs
Pay 17.4 percent of the periodic nourishment cost	$780,000	0

JUSTIFICATION: Continuation of construction of the authorized combined purpose project is necessary because of serious erosion problems threatening the shoreline. Loss of sand due to the lack of bypassing has resulted in a serious erosion problem at Gilgo Beach which is threatening the shoreline including a state highway and the Suffolk County's sewer outfall. The situation has already resulted in two critical areas, and is projected to result in more critical areas in the foreseeable future if erosion is not arrested. Sand from the combined purpose project will arrest the currently ongoing and future erosion.

Annual Benefits	Amount (8 5/8% Rate)
Shoreline Protection	$2,500,000
Road Protection	$3,400,000
Protection to Outfall	$63,000
Total	$5,963,000

STATUS OF LOCAL COOPERATION: The local cooperating agency for this project is the New York State Department of Environmental Conservation. In accordance with paragraph 1.a.(2) of the agreement between the United States of America and the State of New York, signed on 19 June 1973, for local cooperation at Fire Island Inlet & Shore Westerly to Jones Inlet, New York, the locals are responsible for 17.4 percent of the periodic operation cost of the basic project, presently estimated at $780,000 annually. It should be noted that it is anticipated that the operation cycle will occur every two years. Hence, the local or non-Federal share will be approximately $1,560,000 every two years.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $218,300,000 is an increased project cost to continue and complete construction. This estimate is based upon the plan approved by the Assistant Secretary of the Army for Civil Works ASA(CW) on 2 August 1988 and this is the first time this revised estimate is being presented to Congress. This current increase of $195,300,000 from the latest estimate ($23,000,000) presented to Congress (1977). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$19,000,000
Design Changes	$176,300,000
Total	$195,300,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Assessment was filed with the USEPA 1 April 1987. A finding of no significant impacts was completed on 4 August 1987.

OTHER INFORMATION: During the 1980's, the continuation of construction for thes project was conducted utilizing offshore disposal for sand bypassing under operation and maintenance authority and funding. In March 1988, a plan was recommended for solving both the erosion and navigation needs of the area which is in conformance with the multipurpose project as formulated in the authorizing document and subsequently developed in the GDM. The proposed plan was engineered to substantially reduce costs while still providing the required storm protection and the bulk of navigation improvement benefits not currently accruing to the natural channel (single purpose project). The proposal which is in accordance with the authorizing document is to maintain a realigned channel in the vicinity of the natural channel to 450 feet in width. The 14 foot depth was chosen as it provides an additional degree of safety to the vessels using the channel during periods of high waves. The approximately 1,000,000 cubic yards of dredged sand will be hydraulically placed along the shoreline in the vicinity of Gilgo Beach, for shore protection purposes. This plan was approved by the Assistant Secretary of the Army for Civil Works on 2 August 1988. The described work was first accomplished in May 1989.

APPROPRIATION TITLE: Construction General - Channels and Harbors (Navigation)

PROJECT: Hempstead Harbor, New York (Continuing)

LOCATION: Hempstead Harbor is located on the north shore of Long Island approximately 15 miles east of New York City in Nassau County, New York.

DESCRIPTION: The project consists of the removal of abandoned barges and other sources of drift along the west shore of Hempstead Harbor.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable.

TOTAL BENEFIT COST RATIO: Not applicable.

INITIAL BENEFIT - COST RATIO: Not applicable.

BASIS OF BENEFIT COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$4,400,000	
Estimated Non-Federal Cost		2,200,000	
Cash Contribution	2,200,000		
Other Costs	0		
Total Estimated Project Cost		$6,600,000	
Allocation to 30 September FY 1989		$550,000	
Conference Allowance for FY 1990		1,200,000	
Allocation for FY 1990		1,200,000 1/	
Allocation through FY 1990		1,750,000	40
Allocation Requested for FY 1991		2,650,000	100
Scheduled Balance to Complete after FY 1991		0	
Unscheduled Balance to Complete after FY 1991		0	

STATUS (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	0	Dec 1991

PHYSICAL DATA

Removal of approximately 63 wooden barges, 29 steel barges, and other sources of drift and debris along the west bank of Hempstead Harbor.

1/ Reflects reduction of $116,000 assigned as savings and slippage, $12,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $128,000 reprogrammed to the project.

JUSTIFICATION: The purpose of this project is to remove derelict barges and debris that clutter the shore, which are potential sources of drift and may become a hazard to navigation.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Construction	$2,400,000
Engineering and Design	25,000
Supervision and Administration	225,000
Total	$2,650,000

	Payments During Construction and Reimbursements	Annual Operation Maintenance and Replacement Costs
NON-FEDERAL COST:		
Requirements of Local Cooperation		
Pay 33 1/3 percent of the project costs	$2,200,000	0
Total Non-Federal First Cost	$2,000,000	0

STATUS OF LOCAL COOPERATION: New York State Department of Environmental Conservation the local sponsor, in letters dated 11 August 1988 and 24 July 1989 indicated their intent to comply with the items of local cooperation. The Town of North Hempstead, in a letter dated 11 July 1989, expressed a willingness and ability to participate in the project. The Local Cooperation Agreement is scheduled for execution in the 3rd quarter of FY 1990. The current non-Federal cost estimate of $2,200,000, all cash contributions, is an increase of $399,991 from the non-Federal cost estimate of $1,800,009, all cash contributions, noted in the local cooperation agreement scheduled for execution in FY 1990. In a letter dated 24 July 1989, the non-Federal sponsor indicated that it is financially capable and willing to contribute the increased non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implemental plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $4,400,000 is an increase of $2,100,000 from the latest estimate ($2,300,000) presented to Congress (FY1990). This change includes the following items:

Item	Amount
a. Price Escalation on Construction Features	100,000
b. Other Estimating Adjustments	2,000,000
TOTAL	2,100,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment has been prepared for inclusion in the final GDM.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1983; construction is scheduled to be initiated in FY 1990.

APPROPRIATION TITLE: Construction General - Channels and Harbors (Navigation)

PROJECT: Kill Van Kull and Newark Bay, New York and New Jersey (Continuing)

LOCATION: The project is located in New York Harbor five to eight miles southwesterly of the Battery, New York City between Staten Island, New York, and Bayonne, New Jersey.

DESCRIPTION: Dredging of about 5 miles of the Kill Van Kull Channel to 40 feet with widenings at Robins Reef, St. George and Bergen Point; dredging of about 3 miles of the Newark Bay Channels to 40 feet, with widenings at the site of the Central Railroad Bridge and the junction with the Port Newark Channel; also dredging of a turning basin at Port Elizabeth; and dredging of about 5 miles of pierhead channel at Port Newark and Port Elizabeth, also to 40 feet. Unscheduled work will deepen all channels from 40 to 44 feet.

AUTHORIZATION: Supplemental Appropriations Act of 1985 and Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 7.4 to 1 at 8 1/8 percent.

TOTAL BENEFIT - TOTAL COST RATIO: 6.7 to 1 at 8 7/8 percent.

INITIAL BENEFIT - COST RATIO: 6.9 to 1 at 8 1/8 percent (FY 1985)

BASIS OF BENEFIT - COST RATIO: Benefits are from the approved GDM dated June 1986 at October 1985 price level.

SUMMARIZED FINANCIAL DATA		
Estimated Appropriation Requirement		268,600,000
Scheduled Construction	180,625,000	
Unscheduled Construction	87,975,000	
Estimated Appropriation Requirement (U.S. Coast Guard)		2,200,000
Scheduled Construction	2,200,000	
Unscheduled Construction	0	
Estimated Total Appropriation Requirement		270,800,000
Scheduled Construction	182,825,000	
Unscheduled Construction	87,975,000	

Status (1 Jan 1990)	Percent Completed	Completion Schedule
Scheduled		
Contract 1	100%	Apr 1988
Contract 2	82%	May 1990
Contract 3	90%	Apr 1990
Contract 4A	0%	Oct 1994
Contract 4B	0%	Jan 1993
Contract 5	100%	Dec 1989
Unscheduled		
Deepening all channels to auth. depth	0%	Indef.
Entire Project	68%	Indef.

19 JAN 1990

SUMMARIZED FINANCIAL DATA (Continued)

Future Non-Federal Reimbursement			35,595,000	
Scheduled Construction	22,835,000			
Unscheduled Construction	12,760,000			
Estimated Federal Cost (Ultimate)			233,005,000	
Scheduled Construction	157,790,000			
Unscheduled Construction	75,215,000			
Estimated Non-Federal Cost			212,935,000	
Scheduled Construction		146,810,000		
Cash Contribution	60,215,000			
Other Costs	63,760,000			
Reimbursements	22,835,000			
Unscheduled Construction		66,125,000		
Cash Contribution	29,325,000			
Other Costs	24,040,000			
Reimbursements	12,760,000			
Total Estimated Scheduled Construction Cost			306,800,000	
Total Estimated Unscheduled Construction Cost			141,340,000	
Total Estimated Project Cost			448,140,000	
				ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1989			66,633,000	
Conference Allowance for FY 1990			0	
Allocation for FY 1990			13,800,000 1/	
Allocation through FY 1990			80,433,000	44%
Allocation Requested FY 1991			31,000,000	62%
Scheduled Balance to Complete after FY 1991			69,192,000	
Unscheduled Balance to Complete after FY 1991			87,975,000	

1/ Reflects $13,800,000 reprogrammed to the project

29 JAN 1990

JUSTIFICATION: Cargo handled at Port Newark and Port Elizabeth, which together comprise one of the nation's larger containerports, was about 17.5 million tons in 1987. The present 35-foot channels in the Kill Van Kull and Newark Bay preclude present generation containerships from fully loading and will further hamper future fleets of larger draft vessels. The average benefits, all of which are allocated commercial navigation, are $274,359,300.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate Dredging Contract No. 4A	$16,855,000
Initiate Dredging Contract No. 4B	12,350,000
Engineering and Design	145,000
Supervision & Administration	1,650,000
Total	$31,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements
Dredging berthing areas and relocate utilities where necessary in the construction of the project.	$63,760,000
Pay 25 percent of the costs allocated to deep draft navigation during construction.	60,215,000
Pay an additional 10 percent of the costs allocated to deep draft navigation within a period of 30 years following completion of construction which is partially offset by a credit allowed for the value of lands, easements, rights of way, relocation, and dredged material disposal areas).	22,835,000
Total Non-Federal First Cost	$146,810,000

The non-federal sponsor has also agreed to repay its share of construction costs during construction.

STATUS OF LOCAL COOPERATION: A Local Cooperation Agreement (LCA) with the Port Authority of New York and New Jersey, the local sponsor, was executed for the scheduled work, on 30 May 1986. A modification of the LCA was executed on 21 May 1987, to reflect the criteria of the Water Resources Development Act of 1986.

29 JAN 1990

COMPARISON OF FEDERAL COST ESTIMATES: The Current Federal Cost Estimate of 268,600,000 is an increase of $75,600,000 from the latest estimate ($193,000,000) presented to Congress (FY 1989). This change includes the following items.

Item	Incremental Change
Price Escalation on Construction Features	7,085,000
Post Contract Award and Other Estimating Adjustments	68,515,000
Total	75,600,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with EPA on 31 July 1981. A Supplemental Environmental Impact Statement was filed with EPA on 14 February 1986. The Final Supplement to the Environmental Impact Statement was filed with EPA on 13 February 1987. The Record of Decision was executed on 2 April 1987.

OTHER INFORMATION: Funds to initate preconstruction planning were appropriated in FY 1984 and funds to initiate construction were appropriated FY 1985. The remaining work, (deepening the channels to authorized depth) may be scheduled later in conjunction with the desires of the local interests.

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Norfolk Harbor and Channels (Deepening) VA, (Continuing)

LOCATION: The project is located in Hampton Roads, VA, a 25-square mile natural harbor serving the ports of Norfolk, Newport News, Portsmouth, Chesapeake, and Hampton, VA.

DESCRIPTION: The scheduled work includes continuing Engineering and Design for the 55-foot outbound and southern Branch phases of the project and conducting a Long Term Disposal Study. The unscheduled work includes deepening to 55 feet the outbound lanes of the existing 45-foot channels, construction of a new 60-foot channel, construction of a 55-foot anchorage, increasing the radius of an existing anchorage, deepening 40-foot channels to 45 feet, deepening 35-foot channels to 40 feet, and providing for an 800-foot turning basin. Dredging of the 50-foot outbound channel has been completed.

AUTHORIZATION: Supplemental Appropriations Act of 1985, and Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 1.3 to 1 at 8-1/8 percent.

TOTAL BENEFIT - TOTAL COST RATIO: 1.7 to 1 at 8-7/8 percent.

INITIAL BENEFIT - COST RATIO: 3.7 to 1 at 8-1/8 percent (FY 85).

BASIS OF BENEFIT - COST RATIO: Benefits are from the General Design Memorandum approved in July 1986 at October 1986 price level and the Supplemental Engineering Report approved in August 1989 at October 1989 price level.

SUMMARIZED FINANCIAL DATA:

Estimated Appropriation Requirement (C of E)		$137,400,000
Scheduled construction	$16,875,000	
Unscheduled construction	$120,525,000	
Estimated Appropriation Requirement (Coast Guard)		833,000
Scheduled construction	$306,000	
Unscheduled construction	$527,000	

STATUS (1 January 1990):

ELEMENT	PERCENT COMPLETE	COMPLETION SCHEDULE
Initial Phase (50'Outbound)	100	Dec 88
Remaining Phase Deepen and widen all channels to authorized dimensions	0	Indefinite

SUMMARIZED FINANCIAL DATA (continued)

Estimated Appropriation Requirement (US Navy)			3,508,000
Scheduled construction		$0	
Unscheduled construction		$3,508,000	
Estimated Total Appropriation Requirement			$141,741,000
Scheduled construction		$17,181,000	
Unscheduled construction		$124,560,000	
Future Non-Federal Reimbursement			11,433,000
Scheduled construction		$999,000	
Unscheduled construction		$10,434,000	
Estimated Federal Cost (Ultimate)			$130,308,000
Scheduled construction		$16,182,000	
Unscheduled construction		$114,126,000	
Estimated Non-Federal Cost			$132,392,000
Scheduled Construction		$14,463,000	
Cash Contribution	$9,563,000		
Other Costs	$3,901,000		
Reimbursements	$999,000		
Unscheduled Construction		$117,929,000	
Cash Contribution	$84,337,000		
Other Costs	$23,158,000		
Reimbursements	$10,434,000		
Total Estimated Scheduled Construction			30,645,000
Total Estimated Unscheduled Construction			232,055,000
TOTAL Estimated Project Cost			$262,700,000

PHYSICAL DATA:

CHANNELS	DEPTH (ft. m.l.w)	WIDTH (feet)	LENGTH (miles)
Atlantic Ocean	60	650	9.6
Thimble Shoal	55	650	13.4
Newport News	55	800	6.0
Elizabeth River and Southern Branch	45	375-750	6.0

ANCHORAGES	DEPTH (ft. m.l.w.)	RADIUS (feet)
55 Foot	55	1,500
Sewells Point	45	1,500

		ACCUM. % of EST. FED. COST (C of E)
Allocations to 30 September 1989	$15,010,000	
Conference Allowance for FY 90	1,880,000	
Allocation for FY 90	1,765,000 1/	
Allocations Through FY 90	16,775,000	12
Allocation Requested for FY 91	100,000	
Scheduled Balance to Complete after FY 91	$0	
Unscheduled Balance to Complete after FY 91	$120,525,000	

1/ Reflects reduction of $181,000 assigned for slippage and savings, $19,000 sequestered in accordance with Gramm-Rudman-Hollings Act and $85,000 reprogrammed to the project.

JUSTIFICATION: The existing channels in the Port of Hampton Roads are not deep enough to accommodate the increasing vessels sizes which transport principal commodities such as coal and grain. Hampton Roads coal terminals already receive colliers in excess of 100,000 deadweight tons which cannot sail fully loaded with the existing 50-foot channels thus making unit transportation costs higher. If the Norfolk Harbor Deepening Project is constructed, larger vessels will be able to load to capacity, providing a savings in the delivery of cargo to final destinations. The project will assist in improving the United States' competitive position as a major coal exporter.

Benefits	Amount	Price Level
Transportation Savings (50' Outbound)	$26,400,000	October 1988
Transportation Savings (55' Outbound)	22,200,000	October 1989
Transportation Savings (Southern Branch - 45')	7,700,000	April 1980
Transportation Savings (Southern Branch - 40')	1,561,000	April 1980

FISCAL YEAR 1991: The requested amount will be applied as follows:

Engineering and Design (55' Outbound)	$100,000

NON-FEDERAL COSTS: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

REQUIREMENTS of LOCAL COOPERATION	Payments during construction and reimbursements	Annual operation, maintenance, and replacement costs
Pay Craney Island dredged material disposal area tolls.	$575,000	
Pay the costs of improvements to access channels and berthing areas estimated to cost $2,987,000 and relocate a 30" water main estimated to cost $339,000.	3,326,000	
Pay 50 percent of the costs allocated to deep draft navigation greater than 45 feet during construction and pay 50 percent of the costs of incremental maintenance below 45 feet below mean low water.	9,563,000	$150,000
Pay an additional 10 percent of the costs allocated to deep draft navigation within a period of 30 years following completion of construction (which is partially offset by relocation of the 30" water main and a credit allowed for the Craney Island dredged material area tolls).	999,000	
TOTAL Non - Federal Costs (50 - Foot Outbound Element)	$14,463,000	$150,000

The non-Federal sponsor has also agreed to make required payments concurrently with project construction and to reimburse its share of construction costs over the life of the project, as applicable.

STATUS OF LOCAL COOPERATION: A local Cooperation Agreement (LCA) for the first phase (50' Outbound) was executed 15 May 1986 with the Commonwealth of Virginia, and LCA Modification No. 1 was executed 13 February 1987 to reflect the criteria of the Water Resources Development Act of 1986. The current non-Federal estimated cash contribution of $9,563,000 for the 50-foot Outbound work reflects a decrease of $16,437,000 from the estimate of $26,000,000 included in the Local Cooperation Agreement which principally reflects the favorable bids received. The Commonwealth of Virginia will be required to modify the existing LCA or prepare a new LCA to provide for the cost sharing of the remaining elements.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (C of E) cost estimate of $137,400,000 is an increase of $39,600,000 from the latest estimate ($97,800,000) presented to Congress (FY 1990). This change includes the following items:

ITEM	AMOUNT
Price Escalation on Construction Features	$ 8,328,000
Post Contract Award and Other Estimating Adjustments	31,272,000
TOTAL	$39,600,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (FEIS) and Addendum were filed on 3 April 1981. A final Supplement I to the FEIS was filed on 14 June 1985.

OTHER INFORMATION: The first phase of the project provided an Outbound 50 foot Channel. The inbound 50 and 55 Foot Channel phases have been deferred due to the absence of currently identified economic or operational need. The remainder of the project (the Outbound 55-foot Channel phase and the Southern Branch Channel phase) will be scheduled in conjunction with local interests. The Virginia Port Authority has expressed support for new starts of the 55-foot and Southern Branch Elements in letters dated July 26, 1989 and June 20, 1989. Funds to initiate construction were appropriated in FY 1985.

APPROPRIATION TITLE: Construction, General - Beach Erosion Control

PROJECT: Atlantic Coast of Maryland (Continuing)

LOCATION: Fenwick and Assateague Islands form the Atlantic Coast of Maryland and extend in a north-south direction from Delaware Bay to Chincoteague Inlet, Virginia. The project is located in Worcester County, Maryland.

DESCRIPTION: The proposed project includes a dune beginning at 27th Street extending north to the Delaware line. From 27th Street south to Fourth Street, a steel sheet pile bulkhead will be provided. The beach will also be widened and raised from Third Street to just beyond the Delaware line.

AUTHORIZATION: Water Resources Development Act of 1986 modified by the Energy and Water Development Appropriations Act of 1990.

REMAINING BENEFIT-REMAINING COST RATIO: 1.6 to 1 at 8 5/8 percent.

TOTAL BENEFIT-COST RATIO: 1.4 to 1 at 8 5/8 percent.

INITIAL BENEFIT - COST RATIO: 1.3 to 1 at 8 5/8 percent (FY 1990)

BASIS OF BENEFIT-COST RATIO: Benefits are from the General Design Memorandum completed in October 1989 at October 1989 price levels.

SUMMARIZED FINANCIAL DATA			Accum. % of Est. Fed. Cost	STATUS (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$192,000,000		Initial Construction	0	Apr 1992
				Periodic Nourishment	0	Sep 2040
Estimated Non-Federal Cost:		156,960,000		Entire Project	0	Sep 2040
Cash Contributions	$155,200,000					
Other Costs	1,760,000					
Total Estimated Project Cost		$348,960,000 1/				

Allocations to 30 September 1989	$2,640,000		
Conference Allowance for FY 1990	8,200,000		
Allocation for FY 1990	8,085,000	2/	
Allocations through FY 1990	10,725,000		6
Allocation Requested for FY 1991	14,800,000		13
Scheduled Balance to Complete after FY 1991	166,475,000		
Unscheduled Balance to Complete after FY 1991	0		

PHYSICAL DATA

Steel Bulkhead - 1.5 miles
Sand Dune - 6.7 miles
Beach - 1.5 miles x 165 ft. wide
6.7 miles x 100 ft. wide
0.3 mile transition into Delaware

1/ Includes nourishment costs throughout the 50-year project life.

2/ Reflects $115,000 sequestered in accordance with the Gramm-Rudman-Hollings Act.

JUSTIFICATION: Fenwick Island (Ocean City, Maryland) is highly developed as it is the primary ocean resort for the metropolitan centers of Washington, D.C. and Baltimore, Maryland. The Ocean City portion of the shore with its highly developed recreation facilities, contributes greatly to the economy of the State and to a lesser extent the nation. The current value of development in Ocean City is over $2 billion. Major portions of Ocean City's beaches have been subjected to erosion which has averaged about 2 feet per year over the past 130 years. This reach of shoreline is subject to severe damage from high tides and wave attack during major storms such as occurred in the northeast storm of March 1962 with estimated damages of $76.1 million and in the hurricane of August 1933. Since 1962 significant development has occurred in the damage prone area. Damages to the public and private property at Ocean City from Hurricane Gloria in September 1985 were estimated at $11.9 million. Severe beach erosion was also caused by the remnants of Hurricane Juan in November 1985 with damages estimated at $944,000. The average annual benefits, essentially all storm damage reduction, are $13,712,000 based on 1 October 1989 prices. The benefit-cost analysis takes as given the state constructed beach and assumes the state would periodically nourish that beach without the Federal project.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue bulkhead construction	$ 2,410,000
Continue dredging	8,440,000
Continue placing beachfill	3,160,000
Engineering and Design	130,000
Construction Management	660,000
Total	$14,800,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payment during Construction, and Reimbursement	Annual Operation Maintenance, Replacement and Major Rehabilition
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 481,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges) and other facilities, where necessary in the construction of the project.	219,000	
Pay 35 percent of the first costs and 47 percent of the costs of periodic nourishment based on a formula that requires payment of 35 percent of the costs assigned to storm damage reduction and 100 percent of the costs assigned to recreation; and bear all costs of operation, maintenance, replacement and major rehabilition of storm damage reduction facilities.	155,200,000	$1,211,000
Pay 100 percent of project betterments.	1,060,000	
Total Non-Federal Costs	$156,960,000	$1,211,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The State of Maryland is the local sponsor for the project. By letter dated 29 September 1989 the State assured it is able and willing to sponsor implementation of the project under the terms and conditions reflected in the Water Resources Development Act of 1986. The Local Cooperation Agreement is scheduled for execution in the 2nd Quarter of FY 1990.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $192,000,000 is an increase of $175,800,000 from the latest estimate ($16,200,000) submitted to Congress (FY 1989). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$74,624,000
Post Contract Award and Other Estimating Adjustments	18,176,000
Sundry (Beach Renourishment)	83,000,000
Total	$175,800,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final EIS was filed with EPA in May 1981. An environmental assessment dated June 1989 is included in the final General Design Memorandum.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1986. Funds to initiate construction were appropriated in FY 1990.

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APPROPRIATION TITLE: Construction, General - Shoreline Protection

PROJECT: Cape May Inlet to Lower Township, New Jersey (Continuing)

LOCATION: The site of the recommended project is located on the Atlantic Coast of New Jersey, approximately 38 miles southwest of Atlantic City. It includes the communities of Cape May City including the United States Coast Guard Training Center and Lower Township in Cape May County.

DESCRIPTION: The plan of improvement consists of construction of two groins and placing beachfill and periodic nourishment which are scheduled and the construction of a weir breakwater which is unscheduled.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 1.9 to 1 at 8 7/8 percent.

TOTAL BENEFIT-COST RATIO: 1.9 to 1 at 8 7/8 percent.

INITIAL BENEFIT-COST RATIO: 1.4 to 1 at 8 5/8 percent at June 1987 price level.

BASIS OF BENEFIT-COST RATIO: Cape May Inlet to Lower Township, New Jersey Benefits Reevaluation Report approved March 1988 at June 1987 Price Levels.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost (COE)			$65,800,000
Scheduled Construction		$60,873,000	
Unscheduled Construction		4,927,000	
Estimated Federal Cost (Coast Guard)			35,800,000
Scheduled Construction		33,075,000	
Unscheduled Construction		2,725,000	
Estimated non-Federal Cost			7,300,000
Scheduled Construction		6,752,000	
Cash Contributions	$6,752,000		
Other Costs	0		

STATUS: (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Initial Construction	34	Dec 1991
Periodic Nourishment	5	Sep 2041
Breakwaters	0	UNSCHEDULED
Entire Project	4	Sep 2041 1/

PHYSICAL DATA:

Beachfill: Elevation +8 feet (NGVD) width varies (25 to 180 feet)

Groins: Seven existing and two new groins length varies (360 to 786 feet).

Weir Breakwater: 2,560 linear feet rubble mound.

Periodic Nourishment: 180,000 cubic yards per year.

1/ Excluding unscheduled weir breakwater.

DIVISION: North Atlantic   DISTRICT: Philadelphia

29 JAN 1990

SUMMARIZED FINANCIAL DATA (continued)

Estimated non-Federal Cost		
Unscheduled Construction		548,000
Cash Contribution	548,000	
Other Costs	0	
Total Estimated Scheduled Construction Cost		100,700,000
Total Estimated Unscheduled Construction Cost		8,200,000
Total Estimated Project Cost		108,900,000

		Accumulated Percentage of Estimated Federal Cost
Allocations to 30 September 1989	$ 1,808,000	
Conference Allowance for FY 1990	2,560,000	
Allocation for FY 1990	2,560,000 1/	
Allocations through FY 1990	4,368,000	7
Allocations Requested for FY 1991	3,200,000	12
Scheduled Balance to Complete after FY 1991	53,305,000	93
Unscheduled Balance to Complete after FY 1991	4,927,000 2/	100

1/ Reflects reduction of $247,000 assigned for savings and slippage, $26,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $273,000 reprogrammed to the project.

2/ Completion of the breakwater element is deferred pending demonstration of need.

JUSTIFICATION - The project area has experienced substantial erosion since the construction of the Cape May Inlet jetties in 1911 by the Federal Government. The jetties interrupt the natural movement of sand along the coast which serves to replenish downdrift beach areas. The City of Cape May and State of New Jersey have spent nearly four million dollars since 1945 to combat the resulting erosion which has left Cape May with little or no protective beach, thus endangering many hotels, small businesses, prominent homes, and a U.S. Coast Guard Training Center. This project would partially restore the beaches of Cape May lost as the direct result of the Cape May Inlet jetties. The potential for future storm damages and maintenance of the seawall would be greatly reduced. The commercial tourism industry would also be enhanced by the provision of sufficient beach area for recreational usage.

Federal facilities have existed at the present site since the establishment of a Navy Base in 1918. The Coast Guard became the sole occupant in 1948 when the Recruit Training Center was transferred from Florida. In addition to being the only site for Coast Guard recruit training for the entire nation, the site also includes a Group/Air Station complex, a Search and Rescue Station, a small boat maintenance facility, and berths for four cutters ranging from 82 to 210 feet in length. The Commandant of the Coast Guard offered to seek funds to support a cost-shared project with the Corps of Engineers because of the erosion at the Training Center and the need for a cooperative effort to solve the problem.

JUSTIFICATION (continued) The average annual benefits are $3,993,000 at June 1987 prices. These include annual storm damage reduction benefits of $2,977,000, reduced annual maintenance costs of $160,000, and annual recreation benefits of $856,000. The distribution of initial costs between the Coast Guard and Cape May City is based on the ratio of benefits accrued by the feeder beach between the two locations. Costs for the remaining features of the recommended project will be allocated to Cape May City. Apportionment of initial costs at Cape May City would follow the cost sharing of the original navigation project (90 percent Federal; 10 percent non-Federal). The cost of initial work at the Coast Guard facility would be reimbursable work (100 percent Coast Guard). Periodic nourishment would be treated as continuing construction. Apportionment of periodic nourishment would follow the cost-sharing of the initial construction.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Complete Beachfill	$ 3,020,000
Engineering & Design	18,000
Supervision & Administration	162,000
TOTAL	$ 3,200,000

NON-FEDERAL COST: In accordance with Section 101(c) of the Water Resources Development Act of 1986, costs of constructing measures for mitigation of erosion damages attributable to Federal navigation project at Cape May Inlet shall be shared in the same proportion as the cost sharing provisions applicable to the original project at Cape May Inlet. The original project was constructed at a Federal cost of approximately $900,000 with a local contribution of $100,000. The non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments during construction and reimbursements	Annual operation, Maintenance, and reimbursement costs
Make cash contributions equal to 10 percent of the initial construction cost and 10 percent of future periodic nourishment. (minus the Coast Guard share)	6,752,000	
Total non-Federal First Cost	6,752,000	

STATUS OF LOCAL COOPERATION: The non-Federal sponsor is the State of New Jersey. A Memorandum of Agreement with the Coast Guard was executed on 4 August 1988. A Local Cooperation Agreement with the State of New Jersey was executed on 31 October 1988. The current non-Federal estimated cash contribution of $6,752,000 for scheduled work, including future periodic nourishment, reflects an increase of $1,547,500 from the estimate of $5,204,500 included in the Local Cooperation Agreement which reflects a price level rise offset by the award of the Groin Contract. Our

STATUS OF LOCAL COOPERATION (continued): analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATE - The current Federal (Corps of Engineers) cost estimate of $65,800,000 is an increase of $14,300,000 from the latest estimate ($51,500,000) presented to Congress (FY 1990). This change includes the following items:

ITEM	AMOUNT
Price Escalation on Construction Features	$ 14,500,000
Post Contract Award and other Estimating Adjustments	- 200,000
Total	$14,300,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with CEQ on 8 October 1976 and a Final Supplement was filed with EPA on 14 August 1981. Listing of Piping Plover (Charadrius Melodus) as an endangered bird species in January 1986 and recent determination by State wildlife officials that the species nests in the project area has necessitated informal consultation in accordance with Section 7 of the Endangered Species Act of 1973. A letter from U.S. Fish and Wildlife Service, dated 20 August 1987, determined that the proposed project is not likely to adversely affect the Piping Plover provided an operational window is observed. Coordination with the service is continuing.

OTHER INFORMATION: Section 111 of the River and Harbor Act of 1968 is applicable to this proposed project due to the shore damages caused in Cape May City by the Federal navigation project at Cape May Inlet. Initial planning funds were appropriated in FY 1978. Initial construction funds were appropriated in Fiscal Year 1986.

27-642 O—90—4

APPROPRIATION TITLE: Construction, General - Shoreline Protection, New Jersey (Continuing)

PROJECT: Great Egg Harbor Inlet And Peck Beach, NJ

LOCATION: The project is located in Cape May and Atlantic Counties, New Jersey. Great Egg Harbor Inlet, an unimproved inlet is about 1.1 miles wide at its narrowest point and provides a tidal connection between the Atlantic Ocean and Great Egg Harbor Bay, the New Jersey Intracoastal Waterway, and Great Egg Harbor River. Peck Beach is occupied in its entirety by the City of Ocean City and extends from Great Egg Harbor Inlet southward to Corson Inlet. The ocean frontage is about eight miles in length.

DESCRIPTION: The recommended plan consists of providing initial beachfill, with subsequent periodic nourishment, with a minimum berm width of 100 feet at an elevation of +8.0 NGVD. The beachfill will extend from Surf Road southwest to 34th Street with a 1000 foot taper south of 34th Street. This plan will require the initial placement of 4,118,000 cubic yards of material and subsequent periodic nourishment of approximately 1,072,000 cubic yards every three years. The material for the initial construction, and periodic nourishment will be taken from the ebb shoal area located approximately 5,000 feet offshore of the Great Egg Harbor Inlet. This periodic dredging of the ebb shoal area for nourishment material will help to alleviate the navigation difficulties in the inlet. Additionally, the construction of the project will require the extension of 38 storm drain pipes.

AUTHORIZATION: Committee Resolution on 15 December 1970 under the provisions of Section 201 of P.L. 89-298 as presented in H.D. 91-160. Project reauthorized with provision for construction of separable elements under Section 831(1) of the Water Resources Development Act of 1986, (P.L. 99-662).

REMAINING BENEFIT-REMAINING COST RATIO. 4.5 at 8 7/8 percent.

TOTAL BENEFIT-COST RATIO: 4.5 at 8 7/8 percent.

INITIAL BENEFIT-COST RATIO: 2.0 to 1 at 8 7/8 percent at September 1988 price level

BASIS OF BENEFIT-COST RATIO: The April 1989 General Design Memorandum approved by the Division Commander in 30 May 1989 at September 1988 price level.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$269,000,000
Estimated non-Federal Cost		145,000,000
Cash Contribution	$144,060,000	
Other Costs	940,000	
Total Estimated Project Cost		$414,000,000

DIVISION: North Atlantic DISTRICT: Philadelphia

29 JAN 1990

SUMMARIZED FINANCIAL DATA (continued)

		Accumulated Percentage of Estimated Federal cost
Allocations to 30 September 1989	$520,000	
Conference Allowance for FY 1990	250,000	
Allocation for FY 1990	246,000 1/	
Allocations through FY 1990	766,000	0
Allocation Requested for FY 1991	3,250,000	2
Scheduled Balance to Complete after FY 1991	264,984,000	100
Unscheduled Balance to Complete after FY 1991	0	

STATUS: (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Beachfill (Phase I)	0	Sep 1991
Beachfill (Phase II)	0	Sep 1992
Periodic Nourishment	0	Sep 2040
Initial Construction	0	Sep 1992
Entire Project	0	Sep 2040

PHYSICAL DATA

Beachfill: Elevation +8 feet (NGVD)
100 - Foot Width
Periodic Nourishment: 1,071,900 cubic yards every three years

1/ Reflects reduction of $4,000 sequestered in accordance with the Gramm-Rudman-Hollings Act.

JUSTIFICATION: The instability of Great Egg Harbor Inlet and the shoreline along Peck Beach is a significant problem. Peck Beach, a barrier island along New Jersey's southern coastline approximately nine miles long, is occupied in its entirety by the City of Ocean City. The primary problem at Ocean City is the vulnerability of the beach and the adjacent highly urbanized development to erosion and direct wave attack during major storms. Historical erosion rates for the beaches have averaged 5 feet per year with severe erosion rates up to 35 feet per year in some locations. In March 1962, a severe storm caused breaching and failing of bulkheads and dunes, and resulted in damages of approximately $15,000,000 of which $4,000,000 was attributed to direct wave attack. It was noted that the area fronting the existing Federal shore protection for Ocean City sustained less damage than other locations. More recently, the storm of 28-30 March 1984 caused extensive damage to the beach, boardwalk, properties and buildings due to the vulnerable condition of the beaches. Great Egg Harbor Inlet is an unimproved inlet that provides a tidal connection between the Atlantic Ocean and the Great Egg Harbor Bay and River and the New Jersey Intracoastal Waterway and the associated boat harbors and terminal facilities. The instability and shoaling of Great Egg Harbor Inlet creates navigation difficulties for commercial and recreation craft, particularly those associated with low tides and ground swells and damages due to running aground. Unsafe navigation conditions due to excessive shoals of Great Egg Harbor Inlet forced the State of New Jersey to commence emergency dredging operations in October 1989.

The average annual benefits (Sept 88 price level) are as follows:

Shoreline Protection (Beach Erosion)	$31,602,700
Navigation	232,000
TOTAL	31,834,700

29 JAN [illegible]

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Beachfill Phase I	$2,020,000
Planning Engineering and Design	1,100,000
Construction Management	130,000
TOTAL	3,250,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

	Payments during construction and reimbursements	Annual operation, maintenance, and replacement costs
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	940,000	32,000
Pay 35 percent of the initial costs allocated to shoreline protection and 35 percent of operation, maintenance, (periodic nourishment) and replacement of shoreline protection features.	145,000,000	0
Total non-Federal First Cost	145,000,000	32,000

STATUS OF LOCAL COOPERATION: The state of New Jersey advised the Corps of Engineers in letters dated 16 November 1982 and 21 March 1983, its intent to provide the necessary items of local cooperation for the shore protection project in this area. In a letter dated 16 March 1988 and 17 April 1989 the State of New Jersey has stated its intent to enter into a Local Cooperation Agreement based on the provisions of the Water Resources Development Act of 1986.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $269,000,000 is the first estimate presented to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with CEQO on 13 November 1970 and a Final Supplement was filed with EPA in May 1989. Listing of the Piping Plover (Charadrius melodus) as an endangered bird species in January 1986 and recent determination by state wildlife officials that the species nests in the project area has necessitated informal consultation in accordance with Section 7 of the Endangered Species Act of 1973. A letter from U.S. Fish and Wildlife Service, dated 9 January 1989 directed the Corps to minimize impacts to the Piping Plover in the project area.

OTHER INFORMATION: The Corps completed a study for the State in December 1985. This study concluded that the economic justification could be based on flood damage prevention benefits. Section 831 of the WRDA of 1986 (P.L. 99-662) authorized construction of the beach erosion control, storm protection or navigation features of the project separately or in combination with the other such features. Preconstruction Engineering and Design is scheduled to be completed in August 1990.

APPROPRIATION TITLE: Construction General - Beach Erosion Control

PROJECT: Atlantic Coast of New Jersey - Sandy Hook to Barnegat Inlet (Continuing)

LOCATION: The overall project area lies along the Atlantic Ocean shoreline of New Jersey in Monmouth and Ocean Counties between Sandy Hook to the north and Barnegat Inlet to the south. Section I - The Sea Bright to Ocean Township section lies solely within Monmouth County. The Sea Bright to Ocean Township section is the northernmost 12 miles of the project, which includes the following communities: Sea Bright, Monmouth Beach, Long Branch, Deal, Allenhurst, and Ocean Township. Section II - Asbury Park to Manasquan section comprises the southern portion of Monmouth County and is approximately 9 miles long. It includes the following communities: Asbury Park, Ocean Grove, Bradley Beach, Avon-by-the Sea, Belmar, Spring Lake, Sea Girt, State Encampment, and Manasquan.

DESCRIPTION: The recommended plan for Section I, Sea Bright to Ocean Township calls provides construction of a fill only plan consisting of a 100 foot wide berm at an elevation of 10 feet above mean low water with an additional 2 foot high storm berm cap along the entire 12 miles of project shoreline extending from Sea Bright to Ocean Township. The original authorized project for Section II, Asbury Park to Manasquan provides for Federal participation in beach restoration by the construction of a berm 100 feet wide at an elevation of 10 feet above mean low water. The project identified for Section II is still subject to modification based on the successful completion of the preconstruction engineering and design effort.

AUTHORIZATION: River and Harbor Act of 3 July 1958, as modified by the Water Resources Development Act of 1986 and the Water Resources Development Act of 1988.

REMAINING BENEFITS - REMAINING COST RATIO: 1.5 to 1 at 8 7/8 percent.

TOTAL BENEFIT-COST RATIO: 1.5 to 1 at 8 7/8 percent.

INITIAL BENEFIT-COST RATIO: 1.5 to 1 at 8 1/8 percent (FY 1985).

BASIS OF BENEFIT COST RATIO: Benefits are from the latest available analysis contained in GDM dated January 1989 at June 1988 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$633,000,000
Estimated Non-Federal Cost		366,600,000
Cash Contribution	$307,600,000	
Other Costs	59,000,000	
Total Estimated Project Cost		$999,600,000 2/

Status (1 Jan 1990)	Percent Completed	Completion Schedule
Sea Bright to Ocean Township		
Initial Construction	0	Sep 1996
Periodic Nourishment	0	Sep 2046
Asbury Park to Manasquan		
Initial Construction	0	Sep 1998
Periodic Nourishment	0	Sep 2048 1/
Entire Project	0	Sep 2048

1/ Engineering and Design of this section has been underway for three years. This estimate is based only on the assumption that the schedule for Section II will be comparable to the schedule for Section I.

2/ Includes cost of nourishment throughout the 50 year project life.

		ACCUM PCT. OF EST. FED. COST
Allocations to 30 September 1989	$ 8,235,000	
Conference Allowance for FY 1990	5,600,000	
Allocation for FY 1990	4,842,000 3/	
Allocations through FY 1990	13,077,000	2%
Allocation Requested for 1991	29,000,000	7%
Scheduled Balance to complete after FY 1991	590,923,000	
Unscheduled Balance to complete after FY 1991	0	

Physical Data

Sea Bright to Ocean Township

- Beach placement over 12 miles

- Notching Existing groins

Asbury Park to Manasquan

- Beach placement over 9 miles

3/ Reflects reduction of $540,000 assigned as savings and slippage and $58,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $160,000 reprogrammed from the project.

JUSTIFICATION: Erosion has seriously reduced the width of most beaches in the study area with consequent exposure of shore to storm damage. Because of this erosion of the shore the area does not provide sufficient recreational beaches for the proper accommodation of the present and prospective tributary population. The State of New Jersey and mayors of affected communities are very concerned over the increased potential for damages to structures due to the eroded condition of the existing beaches. The March 1962 storm caused $33,900,000 worth of damages based on 1989 dollars along the twenty five mile stretch of shore from Sandy Hook to Manasquan Inlet. Subsequent emergency restoration works in this reach cost $7,383,000 in 1988 dollars. In Section I the restored beach has eroded while the area behind the seawall is more densely developed. Section II suffers from eroding beaches also. The average annual benefits from erosion control measures are $50,620,000 at October 1989 prices.

FISCAL YEAR 1991: The requested funding will be applied as follows:

Continue Construction Section 1	$26,100,000
Engineering and Design	1,500,000
Supervision & Administration	1,400,000
Total	$29,000,000

NON-FEDERAL COSTS: Consistent with Public Law 100-676, the Water Resource Development Act of 1988, the non-Federal share of the first $40,000,000 of construction of the Ocean Township to Sandy Hook reach consists of monies expended by non-Federal interests for reconstruction of the seawall at Sea Bright and Monmouth Beach, New Jersey and cost sharing of the project, in excess of the first $40,000,000 increment, is in accordance with Title I of the Water Resources Development Act of 1986, Public Law 99-662. Section I requirements also include lands, easements, rights of way and relocations. In Section II the non-Federal share includes a cash rights of way, and relocations. The combined Section I and Section II requirements follow:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation Maintenance and Replacement Costs
Provide all lands, easements, and rights of way, and relocations.	$ 46,900,000	$3,600,000
Of the first 40 million dollars in costs for Section I, non-Federal interests are required to pay for reconstruction of the seawall at Sea Bright and Monmouth Beach, New Jersey. Thereafter, the non-Federal share is to be 35 percent of project costs in excess of 40 million, excluding non-creditable lands, easements and rights of way, and bear all costs of operation and maintenance and replacement of storm damage reduction facilities.	190,700,000	11,500,000
Pay 35 percent of the first costs of Section II, excluding non-creditable lands, easements and rights of way, and bear all costs of operation and maintenance and replacement of storm damage reduction facilities.	116,900,000	5,200,000
Reconstruct Seawall at Sea Bright and Monmouth Beach (Project requirement).	12,100,000	1,060,000
Total Non-Federal First Cost	$366,600,000	$21,360,000

The non-Federal sponsor will also be required to make all required payments concurrently with project construction.

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STATUS OF LOCAL COOPERATION: By letter dated 1 February 1989 the State of New Jersey Department of Environmental Protection, Division of Coastal Resources, stated its willingness to execute a Local Cooperation Agreement for Section I, as outlined in the GDM. For Section II the State of New Jersey Department of Environmental Protection, Division of Coastal Resources provided a similar letter dated 20 November 1986. Coordination with the local sponsor will continue during engineering, design and construction. The Local Cooperation Agreement for Section I will be executed after the Section 903(a) Report has been approved by the Assistant Secretary of the Army (Civil Works).

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $633,000,000 is an increase of $186,000,000 from the latest estimate ($447,000,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ 15,000,000
Other Estimating Adjustments	171,000,000
Total	186,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment was included in the final GDM. A draft EIS was filed with EPA on 8 July 1988.

OTHER INFORMATION: Section III remains in the inactive category. Section III - Point Pleasant to Seaside Park comprises the northern portion of Ocean County and is approximately 14 miles long. It includes the following communities: Point Pleasant Beach, Bay Head, Mantoloking, Brick Township, Dover Township, Lavallette, Seaside Heights, Seaside Park and Berkeley Township. Project benefits, costs and financial data reflects Section I and Section II only. The basis of the current cost estimate includes, for Section I, first cost based on the preliminary ongoing General Design effort; and, for Section II, first costs based on general design findings, unit, and other costs developed under the Section I ongoing effort. This cost estimate will be refined during engineering and design. Section I total project costs are expected to be in the magnitude of $650 million dollars (including nourishment).

APPROPRIATION TITLE: Construction General - Local Protection (Flood Control)

PROJECT: Delaware Coast Protection, Delaware (Continuing)

LOCATION: The project is located in Sussex County, Delaware, on the Atlantic Ocean at Indian River Inlet.

DESCRIPTION: The plan of improvement consists of constructing a sand bypassing plant and providing periodic nourishment to a feeder beach north of Indian River Inlet.

AUTHORIZATION: Flood Control Act of 1968 and Section 869 of Water Resources Development Act of 1986 (P.L. 99-662).

REMAINING BENEFIT - REMAINING COST RATIO: 28 to 1 at 3 1/4 percent.

TOTAL BENEFIT - COST RATIO: 28 to 1 at 3 1/4 percent.

INITIAL BENEFIT - COST RATIO: Not applicable because the initial benefit-cost-ratio (FY 1977) applied to the former project which was modified by the Water Resources development Act of 1986.

BASIS OF BENEFIT-COST RATIO: Atlantic Coast of Delaware GDM, approved January 1986, October 1984 Price Level and Reevaluation Report approved February 1984, October 1983 Price Level.

SUMMARIZED FINANCIAL DATA			Accumulated Percentage of Estimated Fed. Cost
Estimated Federal Cost		$10,300,000	
Estimated non-Federal Cost		12,100,000	
Cash Contribution	$12,100,000		
Other Costs	0		
Total Estimated Project Cost		$22,400,000	

STATUS: (1 JAN 90)	PERCENT COMPLETE	COMPLETION SCHEDULE
Initial Construction	100	Jan 1990
Periodic Nourishment	4	Sep 2021
Entire Project	22	Sep 2021

PHYSICAL DATA:
Project Area Length: 3500 feet
Sand Bypass Plant - designed to provide the necessary volume of sand to feeder beach. Feeder beach requires bypassing an average of 100,000 c.y. each year.

SUMMARIZED FINANCIAL DATA

Allocations to 30 September 1989	$ 3,704,000		
Conference Allowance for FY 1990	130,000		
Allocation for FY 1990	112,000	1/	
Allocations through FY 1990	3,816,000		37
Allocation Requested for FY 1991	130,000		38
Scheduled Balance to Complete after FY 1991	$ 6,354,000		100
Unscheduled Balance to Complete after FY 1991	0		

1/ Reflects reduction of $13,000 assigned for savings and slippage, $1,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $4,000 reprogrammed from the project.

JUSTIFICATION: The reach of shoreline immediately north of Indian River Inlet, commonly referred to as the feeder beach, is being damaged by erosion, and the State Highway Route 1 is threatened. The project area has also experienced considerable erosion from waves due to hurricanes and northeasters as a result of the lack of adequate protective beaches. The critical length of shoreline north of Indian River Inlet along which erosion threatens Route 1 is extremely important because it provides the only direct roadway between Bethany Beach and the northern beaches. There would be severe negative social and economic impacts if Route 1 were to be cut by a washover. The authorized project would provide tangible benefits by providing beach erosion control measures which in turn reduce annual beach erosion maintenance costs; and reducing wave damages from coastal storms. The average annual benefits, all beach erosion control, are $9,549,200 based on 1 October 1984 prices.

FISCAL YEAR 1991: The requested funding will be used to provide periodic nourishment through the operation of a sand bypass plant. The funds will be applied as follows:

Periodic Nourishment	$ 118,000
Engineering and Design	7,000
Supervision and Administration	5,000
TOTAL	$ 130,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal Sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	First Cost	Annual Costs
Pay 35 percent of the initial costs allocated to Shoreline Protection and 35 percent of operation, maintenance, (Periodic Nourishment) and replacement of shoreline protection features.	$ 441,000	$ 72,000
Pay 100 percent of Operation, Maintenance, and Replacement of Section 111 Mitigation Features		122,000
Total non-Federal first cost	$441,000	$194,000

STATUS OF LOCAL COOPERATION: On 9 November 1984 the state provided a letter of intent regarding items of local cooperation for the project presented in the November 1984 GDM. A Local Cooperation Agreement was executed on 26 October 1988. The current non-Federal estimated cash contribution of $441,000 for scheduled work reflects a decrease of $13,000 from the estimate of $454,000 included in the Local Cooperation Agreement which reflects the actual contract award amount.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $10,300,000 is an increase of $300,000 from the last estimate ($10,000,000) presented to Congress (FY 1990). This change includes the following items.

Item	Incremental Change
Price Escalation on Construction Features	$ 410,000
Post Contract Award and Other Estimating Adjustments	-110,000
TOTAL	$ 300,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with CEQ on 1 June 1971. A draft supplement to the FEIS was filed on 18 April 1975. An Environmental Assessment and a Finding of No Significant Impact were completed on 26 November 1984. Listing of Piping Plover (Charadrius Melodus) as an endangered bird species in January 1986 and recent determination by State wildlife officials that the species nests in the project area has necessitated review procedures in accordance with Section 7 of the Endangered Species Act of 1973. A letter from U.S. Fish and Wildlife Service, dated 4 May 1987, expressed no impact provided an operational window is observed. Coordination with the service is continuing.

OTHER INFORMATION: Funds to initiate Preconstruction Engineering and Design were appropriated in FY 1971 and funds to initiate construction were appropriated in FY 1977. The General Design Memorandum was completed in December 1984 and the Plans and Specifications for the sand bypassing plant was completed in August 1986. Section 869 of the Water Resources Development Act of 1986 deauthorized the unscheduled portion of the project. The Assistant Secretary of the Army (Civil Works) concurred with the Chief of Engineers recommendation in a 14 August 1987 memorandum to the Director of Civil Works that 37.3 percent of the cost of Construction and Operation and Maintenance of the Project should be allocated to mitigation of damage caused by the navigation project (Section 111). The initial construction is to be cost shared 78.1 percent Federal and 21.9 percent non-Federal. ASA(CW) further determined that the Federal Government would provide 40.7 percent of the annual cost of Operation and Maintenance of the plant as its contribution to periodic nourishment of the beach for the remaining authorized periodic nourishment period.

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Yonkers, New York (Deficiency Correction)

LOCATION: The project is located along the Saw Mill River in the City of Yonkers, Westchester County, New York.

DESCRIPTION: Modification of 1200 feet of channel at the upstream end of the completed Yonkers Flood Control Project and associated utility relocations.

AUTHORIZATION: Flood Control Act of 1965, P.L. 89-298

REMAINING BENEFIT - REMAINING COST RATIO: 1.61 to 1 at 8 7/8 percent.

TOTAL BENEFIT-COST RATIO: 1.6 to 1 at 8 7/8 percent.

INITIAL BENEFIT - COST RATIO: 1.8 to 1 at 8 7/8 percent (FY1986).

BASIS OF BENEFIT-COST RATIO: Benefits are shown in the Project Deficiency Report, dated June 1987, that was approved by the Assistant Secretary of the Army (Civil Works) 19 October 1987 at October 1986 price level.

SUMMARIZED FINANCIAL DATA

Original Project		
Actual Federal Cost		13,019,000
Actual Non-Federal Cost		2,550,000
Cash Contributions	0	
Other Costs	2,550,000	
Total Original Project Cost		15,569,000
Remedial Work		
Estimated Federal Cost		510,000
Estimated Non-Federal Cost		163,000
Cash Contributions	118,000	
Other Costs	45,000	
Total Estimated Remedial or Modification Cost		673,000
Total Estimated Project Cost		16,242,000

Status(1 Jan 1990)	Percent Complete	SUMMARIZED Completion Schedule
Channels & Canals	0	Jun 92
Railroads and Other Relocations	0	Jun 92
Floodway Control and Diversion Structure	0	Jun 92
Entire Project	0	Jun 92

SUMMARIZED FINANCIAL DATA (continued)		ACCUM PCT. OF EST. FED. COST
Allocation to 30 September 1989	13,019,000	
Conference Allowance for FY 1990	0	
Allocation for FY 1990	0	
Allocation through FY 1990	13,019,000	
Allocation Requested for FY 1991	355,000	70
Scheduled Balance to Complete after FY 1991	155,000	100
Unscheduled Balance to Complete after FY 1992	0	

PHYSICAL DATA

1,200 feet of channel modification, removal of an abandoned railroad bridge, relocation of approximately 60 feet of a sanitary siphon, removal and replacement of a concrete weir approximately 60 feet long, and sealing two sanitary manholes on a 6 foot diameter trunk line.

JUSTIFICATION: Due to an inadequate channel depth upstream of the completed Yonkers Flood Control Project, flows in the Yonkers Tie-In Reach are greater than the channel capacity and overtop the left bank. The flooding affects the structures on the left bank from approximately 300 feet upstream of Old Nepperhan Avenue to the Torre Place Bridge. The channel improvement will protect five structures: a large manufacturing company, a wholesale distributor, an auto salvage yard, a plumbing supply company, and an auto body repair shop. Average annual damages under the existing conditions are estimated at $150,500. Average annual benefits are $89,000 for urban flood damage prevention.

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FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate Construction of Channels and Canals	$180,000
Initiate Railroad Relocation	36,000
Other Utility Relocations	21,000
Engineering and Design	64,000
Supervision and Administration	54,000
TOTAL	$355,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts contained in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursement	Annual Operation Maintenance and Replacement Costs
Provide lands, easements, rights-of-way, and required disposal areas	$45,000	
Pay 25 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, and replacement of flood control facilities.	$118,000	$53,500
Total Non-Federal First Cost	$163,000	$53,500

STATUS OF LOCAL COOPERATION: New York State Department of Environmental Conservation (NYSDEC), the local sponsor, has been actively involved in the development of this project. A Letter of Intent, dated 2 June 1987, and a financial statement have been received from the NYSDEC. A Local Cooperation Agreement (LCA) will be prepared and negotiated in FY 1990.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $510,000 is the initial estimate being submitted to Congress for this project.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Environmental Assessment (EA), a 404(b)1 Evaluation Report and a Public Notice were prepared. A Finding of No Significant Impact was completed on November 14, 1983.

OTHER INFORMATION: A Design Deficiency Report was approved on 19 October 1987.

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Lock Haven, Pennsylvania (Continuing)

LOCATION: The project is located in the City of Lock Haven, Castanea, Woodward and Allison Townships and Borough of Flemington, Pennsylvania, and is situated on the West Branch Susquehanna River, 194 miles above the mouth of the Susquehanna River in Clinton County, Pennsylvania.

DESCRIPTION: The project includes 36,600 feet of levee and 1,000 feet of concrete floodwall along the West Branch and Bald Eagle Creek, five closure structures, seven ponding areas, a sanitary pumping station, 35 gravity type drainage structures, necessary road and utility relocations, non-structural measures for Woodward and Allison Townships, and minor recreation facilities.

AUTHORIZATION: Water Resources Development Act of 1986 as ammended by Public Law 100-109 dated 20 August 1987.

REMAINING BENEFIT-REMAINING COST RATIO: 1.5 to 1 at 8 5/8 percent.

TOTAL BENEFIT-COST RATIO: 1.4 to 1 at 8 5/8 percent.

INITIAL BENEFIT-COST RATIO: 1.6 to 1 at 8 5/8 percent (FY 1990).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in August 1987 at 1986 price levels.

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SUMMARIZED FINANCIAL DATA			Accum. % of Est. Fed. Cost	STATUS (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$64,300,000				
Estimated Non-Federal Cost:		22,100,000		Entire Project	0	Sep 1993
Cash Contributions	$4,405,000					
Other Costs	17,695,000					
Total Estimated Project Cost		$86,400,000				

Allocations to 30 September 1989	3,448,000	
Conference Allowance for FY 1990	7,600,000	
Allocation for FY 1990	6,571,000 1/	
Allocations through FY 1990	10,019,000	16
Allocation Requested for FY 1991	18,600,000	45
Scheduled Balance to Complete after FY 1991	35,681,000	
Unscheduled Balance to Complete after FY 1991	0	

PHYSICAL DATA

Pump Station	- 1 Sanitary
Drainage Structures	- 35 Gravity type
Woodward Township Non-Structural Measures	- 131 Structures
Earth Levees	- 36,600 feet
Concrete Floodwalls	- 1,000 feet
Closure Structures	- 5

1/ Reflects reduction of $733,000 assigned as savings and slippage and $78,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $218,000 reprogrammed from the project.

JUSTIFICATION: Lock Haven is the largest city in Clinton County and is the center of cultural, industrial and business activity within the County. About half of the City's residential development and nearly all of the commercial and industrial land is located in the flood plain and is subject to flooding, both from the West Branch Susquehanna River and Bald Eagle Creek. The City has been flooded 20 times since 1847. The two most damaging floods occurred in March 1936 (flood of record) and June 1972 (Tropical Storm Agnes). The 1936 flood caused an estimated $3,500,000 in damages. A recurrence of the 1936 flood at this time would result in damages of about $126,300,000 (October 1989 prices). Tropical Storm Agnes caused an estimated $50,700,000 in June 1972. A recurrence of Storm Agnes at this time would result in about $98,800,000 in damages (October 1989 prices). The most recent flooding occurred during Storm Eloise in September 1975. A recurrence of this flood today would cause an estimated $3,100,000 in damages (October 1989 prices). The estimated average annual benefits, all flood control, are $9,747,000 based on the latest available evaluation approved in August 1987 at 1986 price levels.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue construction of levees	$ 12,225,000
Continue non-structural measures for Woodward Township	4,250,000
Continue construction of cultural mitigation facilities	600,000
Engineering and Design	575,000
Construction Management	950,000
Total	$18,600,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payment During Construction and Reimbursement	Annual Operation Maintenance and Replacement Cost
Provide lands, easements and rights of way.	$3,092,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges) and other facilities where necessary in the construction of the project.	6,380,000	
Pay 14.3 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25.4 percent (which is partially offset by a credit of $5,200,000 allowed for completed work by non-Federal interests), and bear all costs of operation, maintenance and replacement of flood control facilities.	12,243,000	64,000
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	385,000	15,000
Total Non-Federal First Costs	22,100,000	79,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The Lock Haven Area Flood Protection Authority, a municipal authority created by the City of Lock Haven and Woodward Township, is the sponsor for the project. By resolution dated 20 July 1988 the Authority indicated its intent to provide the requirements of local cooperation. By letter dated 5 April 1988 the Commonwealth of Pennsylvania affirmed that it will participate with the sponsor in sharing the non-Federal cost of the project. Negotiations on the Local Cooperation Agreement are continuing, and the Agreement is scheduled for execution in the second quarter of FY 1990. By letter dated 11 September 1987 the Acting Assistant Secretary of the Army (Civil Works) advised the Mayor of Lock Haven that a total of $4,796,000 in local credits would be allowed towards project local cooperation requirements. The major element of the credit is $3,950,000 for the completed U.S. 220 highway embankment which will be incorporated into the proposed levee.

[illegible] JAN 1990

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $64,300,000 is an increase of $3,000,000 from the latest estimate ($61,300,000) submitted to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ -578,000
Post Contract Award and Other Estimating Adjustments	3,578,000
Total	$ 3,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Supplement to the EIS was filed with EPA in June 1981. An environmental assessment dated May 1987 is included in the final Phase II General Design Memorandum.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1983. Funds to initiate construction were appropriated in FY 1990.

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Richmond, Virginia (Continuing)

LOCATION: The project is located in the city of Richmond, Virginia and is bordered on the north by Henrico County and on the south by Chesterfield County.

DESCRIPTION: The James River flows directly through Richmond separating its business district into two areas; the Shockoe Creek area on the north bank and the industrial-commercial complex on the south bank. The project will provide a system of floodwalls and levees on both sides of the river in the downtown area and will provide protection against a flood higher than the June 1972 event which is the maximum flood of recent record.

AUTHORIZATION: Supplemental Appropriations Act of 1985, and Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 1.5 to 1 at 8-1/8 percent.

TOTAL BENEFIT - COST RATIO: 1.1 to 1 at 8-1/8 percent

INITIAL BENEFIT - COST RATIO: 1.1 to 1 at 8 1/8 percent (FY 85).

BASIS OF BENEFIT - COST RATIO: Benefits at October 1986 price levels are from the Phase II General Design Memorandum approved July 1987.

SUMMARIZED FINANCIAL DATA:

Estimated Federal Cost		$78,600,000
Estimated Non-Federal Cost		$26,200,000
Cash Contribution	$12,300,000	
Other Costs	$13,900,000	
Total Estimated Project Cost		$104,800,000

STATUS(1 January 1990):

	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	8	Sep 1993

SUMMARIZED FINANCIAL DATA (continued)

			ACCUM. % OF EST. FED. COST
Allocations to 30 September 1989	$ 7,966,000		
Conference Allowance for FY 1990	18,000,000		
Allocation for FY 1990	15,563,000	1/	
Allocations through FY 1990	23,529,000		30
Allocation Requested for FY 1991	18,000,000		53
Scheduled Balance to Complete after FY 1991	37,071,000		
Unscheduled Balance to Complete after FY 1991	0		

PHYSICAL DATA:

a. Northside area - Concrete cantilever floodwalls, 4,470 feet long; 9 railroad and street closures; and associated interior drainage facilities including a pumping station. Average Height is 22 feet for the cantilever walls.

b. Southside area - Concrete cantilever floodwalls, 2,000 feet long; earth levees, 10,000 feet long; 6 railroad and street closures; relocation of 3 industries; and associated interior drainage facilities including ponding areas and 2 pumping stations. Average heights are 24 feet and 22 feet for the floodwall and levee, respectively.

1/ Reflects reduction of $1,736,000 assigned for slippage and savings, $185,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $516,000 reprogrammed from the project.

JUSTIFICATION: The James River flows directly through the city separating its business district into two areas, Shockoe Creek on the north bank and the major industrial-commercial complex on the South Side. Much of Richmond, including most of the residential development, is above the highest known flood stages. However, flooding in the Shockoe Creek and the South Side areas has resulted in serious and extended business losses to industries and commercial activities, disruption of rail and highway transportation, and prolonged interruption of public utility operations. The city of Richmond has experienced three major floods in recent history. In August 1969, the remnants of Hurricane Camille passed over Virginia causing severe flooding in the city. A recurrence of this flood would result in approximately $43,000,000 in damages (October 1989 price levels). In June 1972, Hurricane Agnes caused flooding about 8 feet higher than that experienced in 1969. A recurrence of this flood would result in approximately $123,000,000 in damages (October 1989 price levels). In November 1985 the city experienced another major flood that was 2 feet higher than that experienced in 1969. A recurrence of this flood would result in approximately $59,000,000 in damages (October 1989 price levels). The average annual benefits, all flood damage prevention, are $9,285,000 at the October 1986 price levels.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue northside drainage	$3,760,000
Initiate walls and closures	7,327,000
Continue pump stations and southside drainage	2,426,000
Continue Southside Levee	3,253,000
Engineering and Design	113,000
Supervision and Administration	1,121,000
TOTAL	$18,000,000

NON-FEDERAL COSTS: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the Non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments during Construction and Reimbursement	Annual Operation, maintenance, and replacement costs
Provide lands, easements, rights-of way, and material disposal areas.	$5,800,000	
Modify or relocate utilities, roads, and interior drainage facilities.	8,100,000	
Pay 11.7 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, and replacement of flood control facilities.	12,300,000	360,000
Total Non-Federal First Cost	$26,200,000	$360,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The City of Richmond, VA is the local sponsor. The Local Cooperation Agreement was executed on 16 June 1986. The current non-Federal cost estimate of 26,200,000 which includes a cash contribution of $12,300,000 is an increase of $2,130,000 from the non-Federal cost estimate of $24,070,000 which included a cash contribution of $5,030,000 effictive at the time the Local Cooperation agreement was signed. In a letter dated 29 December 1989, the non-Federal sponsor indicated that it is financially capable and willing to contribute the increased non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implemental plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $78,600,000 is an increase of $5,400,000 from the latest estimate ($73,200,000) presented to Congress (FY 90). This change includes the following items:

ITEM	AMOUNT
Price Escalation on Construction Features	$(-)3,670,000
Post Contract Award and Other Estimating Adjustments	9,070,000
TOTAL	$5,400,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS and Supplement were filed with CEQ on 8 October 76 and 24 July 81 respectively.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1984 and funds to initiate construction were appropriated in FY 1985.

NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General FY 1991

1. Navigation

a. Channels and Harbors

The program request of $99,258,000 provides for essential maintenance work on 82 channel and harbor projects named in the list which follows. The work to be accomplished under this activity consists of maintaining the navigation channels and harbors and anchorages of coastal harbors and waterways by means of dredging, snagging, and operation or repair of navigation structures, all as authorized by the laws adopting river and harbor projects.

	OBLIGATIONS			
PROJECT	Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
Delaware				
Indian River Inlet & Bay	34,000	818,000	325,000	Periodic dredging and perform stabilization study of the north and south jetties in FY 90; continue stabilization study in FY 91
IWW, Chincoteague Bay to Delaware Bay	15,000	16,000	17,000	
IWW, from Delaware River to Chesapeake Bay, DE & MD	7,175,000	16,566,000	22,402,000	Variation in dredging requirements; includes major rehabilitation of C&D canal bridges in FY 89 at $570,000, and FY 90 at $3,275,000 and FY 91 at $7,225,000; see justification following this table

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APPROPRIATION TITLE: Operation and Maintenance, General FY 1991

1. Navigation (cont'd)

a. Channels and Harbors (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
	$	$	$	
Delaware (Cont'd)				
Murderkill River	336,000	22,000	150,000	Dredging in FY 89 and FY 91
Wilmington Harbor	5,614,000	3,505,000	3,164,000	Variation in dredging requirements; construct new dredge material disposal facility in FY 89 and FY 90; repair dike foundation in FY 90
District of Columbia				
Potomac River below Washington	56,000	169,000	500,000	Engineering and design in FY 89 for dredging in FY 90 and FY 91
Washington Harbor	20,000	20,000	21,000	

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NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation: (Cont'd)

a. Channels and Harbors (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	 Estimated FY 1990 $	 Estimated FY 1991 $	Explanation of Major
Maryland				
Baltimore Harbor & Channels	3,758,000	8,458,000	9,233,000	Variation in dredging requirements
Fishing Creek	0	447,000	350,000	Dredging in FY 90 and FY 91
Herring Creek, Tall Timbers	3,000	0	30,000	Engineering and design in FY 89; repair beach shoreline in FY 91
Neale Sound	0	502,000	517,000	Dredging in FY 90 and FY 91
Ocean City Harbor & Inlet and Sinepuxent Bay	74,000	424,000	450,000	Engineering and design in FY 89 for dredging in FY 90 and FY 91
St. Jerome Creek	0	24,000	372,000	Engineering and design in FY 90 for dredging in FY 91
Wicomico River	742,000	276,000	1,000,000	Variations in dredging requirements

NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation: (Cont'd)

a. Channels and Harbors (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
New Jersey				
Barnegat Inlet	732,000	793,000	850,000	Variation in dredging requirements
Cheesequake Creek	0	0	50,000	Engineering and design for dredging in FY 91
Cold Spring Inlet	177,000	334,000	385,000	Variation in dredging requirements
Delaware River Philadelphia, PA to Trenton	1,757,000	275,000	3,280,000	Variation in dredging requirements
Delaware River Philadelphia to the Sea, PA, NJ and DE	13,382,000	13,286,000	11,410,000	Variation in dredging requirements

NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation: (Cont'd)

a. Channels and Harbors (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
New Jersey (Cont'd)				
Manasquan River	0	0	190,000	Periodic dredging in FY 91
New Jersey Intracoastal Waterway	1,674,000	3,711,000	2,529,000	Variation in dredging requirements; repair of south bank erosion in FY 90
Newark Bay, Hackensack & Passaic Rivers	30,000	41,000	50,000	Dredge material testing in FY 89 and FY 90; engineering and design for dredging in FY 91
Raritan River	103,000	981,000	600,000	Variation in dredging requirements

2 9 JAN 1990

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation: (Cont'd)

a. Channels and Harbors (Cont'd)

	OBLIGATIONS			
PROJECT	Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
New Jersey (Cont'd)				
Raritan River to Arthur Kill Cut-off	0	48,000	1,050,000	Engineering and design in FY 90 for dredging in FY 91
Sandy Hook Bay	0	0	30,000	Engineering and design for dredging in FY 91
Sandy Hook Bay at Leonardo	0	25,000	880,000	Dredge material testing and engineering and design in FY 90; periodic dredging in FY 91
Shark River	12,000	0	40,000	Engineering and design for dredging in FY 91

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation: (Cont'd)

a. Channels and Harbors (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	 Estimated FY 1990 $	 Estimated FY 1991 $	Explanation of Major Changes
New York				
Bay Ridge & Red Hook Channels	3,091,000	136,000	1,417,000	Dredging in FY 89 and FY 91; engineering and design in FY 90 for dredging in FY 91
Bronx River	0	59,000	720,000	Dredge material testing and engineering and design in FY 90; for periodic dredging in FY 91
Buttermilk Channel	59,000	442,000	75,000	Periodic dredging in FY 90; engineering and design in FY 89 and FY 91
Coney Island Channel	0	47,000	720,000	Engineering and design in FY 90 for periodic dredging in FY 91
Coney Island Creek	0	59,000	40,000	Engineering and design for dredging in FY 90 and FY 91; dredge material testing in FY 90

NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation: (Cont'd)

a. Channels and Harbors (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	 Estimated FY 1990 $	 Estimated FY 1991 $	Explanation of Major Changes
New York (Cont'd)				
East River	1,000	59,000	1,410,000	Soil testing and engineering and design in FY 90; periodic dredging in FY 91
East Rockaway Inlet	856,000	832,000	630,000	Variation in dredging requirements
East Chester Creek	972,000	146,000	150,000	Periodic dredging in FY 89 and FY 91; engineering and design and soil testing for dredging; perform stability study of bulkhead repair in FY 90
Echo Bay Harbor	0	0	40,000	Engineering and design for dredging in FY 91
Fire Island Inlet to Jones Inlet	487,000	1,557,000	835,000	Variation in dredging requirements

NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation: (Cont'd)

a. Channels and Harbors (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	 Estimated FY 1990 $	 Estimated FY 1991 $	Explanation of Major Changes
New York (Cont'd)				
Flushing Bay & Creek	0	59,000	690,000	Dredge material testing and engineering and design in FY 90; periodic dredging in FY 91
Gowanus Creek Channel	0	59,000	140,000	Dredge material testing and engineering and design for dredging in FY 90; periodic dredging in FY 91
Great South Bay	0	0	50,000	Engineering and design for dredging in FY 91
Harlem River	0	59,000	140,000	Dredge material testing and engineering and design for dredging in FY 90; periodic dredging in FY 91
Hempstead Harbor	0	70,000	40,000	Dredge material testing in FY 90; engineering and design for dredging in FY 90 and FY 91

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NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation: (Cont'd)

a. Channels and Harbors (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
New York (Cont'd)				
Hudson River Channel	295,000	0	660,000	Dredging in FY 89 and FY 91
Hudson River	4,236,000	2,414,000	2,102,000	Variation in dredging requirements; repair concrete lock wall in FY 89 and FY 90
Jamaica Bay	0	47,000	850,000	Dredge material testing and engineering and design in FY 90 for periodic dredging in FY 91
Jones Inlet	91,000	899,000	40,000	Dredge material testing and engineering and design in FY 89 for periodic dredging in FY 90; engineering and design in FY 91
Lake Montauk Harbor	1,000	24,000	30,000	Dredge material testing in FY 90; engineering and design for dredging in FY 90 and FY 91

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NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation: (Cont'd)

a. Channels and Harbors (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	 Estimated FY 1990 $	 Estimated FY 1991 $	Explanation of Major Changes
New York (Cont'd)				
Long Island Intracoastal Waterway	71,000	0	60,000	Dredge material testing and engineering and design in FY 89 and FY 91
Mamaroneck Harbor	62,000	573,000	40,000	Periodic dredging in FY 90; dredge material testing and engineering and design in FY 89 and FY 91
Narrows of Lake Champlain, NY & VT	55,000	64,000	40,000	Repair fender booms and remove stumps and snags in FY 89; dredge material testing in FY 90
New Rochelle Harbor	0	0	40,000	Engineering and design for dredging in FY 91

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NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation: (Cont'd)

a. Channels and Harbors (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	 Estimated FY 1990 $	 Estimated FY 1991 $	Explanation of Major Changes
New York (Cont'd)				
New York Harbor	4,701,000	5,743,000	4,279,000	Variation in dredging requirements
New York & New Jersey Channels	127,000	2,029,000	2,705,000	Variation in dredging requirements
Newtown Creek	1,000	0	30,000	Engineering and design for dredging in FY 91
Northport Harbor	0	0	50,000	Engineering and design for dredging in FY 91

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NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation: (Cont'd)

a. Channels and Harbors (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	 Estimated FY 1990 $	 Estimated FY 1991 $	Explanation of Major Changes
New York (Cont'd)				
Port Chester Harbor	102,000	790,000	30,000	Dredge material testing in FY 89; engineering and design for dredging in FY 89 and FY 91; periodic dredging in FY 90
Sheepshead Bay	0	139,000	40,000	Periodic dredging in FY 90; engineering and design for dredging in FY 91
Tarrytown Harbor	0	0	50,000	Engineering and design for dredging in FY 91
Westchester Creek	0	53,000	550,000	Dredge material testing and engineering and design in FY 90 for periodic dredging in FY 91

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NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation: (Cont'd)

a. Channels and Harbors (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	 Estimated FY 1990 $	 Estimated FY 1991 $	Explanation of Major Changes
Pennsylvania				
Schuylkill River	141,000	1,394,000	1,400,000	Dredging in FY 90 and FY 91
Virginia				
Appomattox River	212,000	1,011,000	1,000,000	Variation in dredging requirements
Atlantic Intracoastal Waterway	2,245,000	3,819,000	4,642,000	Variation in maintenance of bridge and lock items; replace bulkhead along the Albemarle and Chesapeake Canal route in FY 91; bulkhead repairs south of Deep Creek Bridge and replace trash screen structure in FY 89; lock in caretaker status at Dismal Swamp route in FY 90 and FY 91
Channel to Newport News	0	95,000	695,000	Dredging in FY 90 and FY 91; perform channel condition survey in FY 91

NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation: (Cont'd)

a. Channels and Harbors (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	 Estimated FY 1990 $	 Estimated FY 1991 $	Explanation of Major Changes
Virginia (Cont'd)				
Chincoteague Bay Channel	0	0	246,000	Periodic dredging in FY 91
Chincoteague Harbor of Refuge	0	0	129,000	Periodic dredging in FY 91
Chincoteague Inlet	713,000	810,000	734,000	Variation in dredging requirements
Cranes Creek	0	0	181,000	Periodic dredging in FY 91
Deep Creek	0	683,000	715,000	Dredging in FY 90 and FY 91

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APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation: (Cont'd)

a. Channels and Harbors (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
Virginia (Cont'd)				
Greenvale Creek	0	66,000	229,000	Dredging in FY 90 and FY 91
James River	900,000	2,027,000	780,000	Variation in dredging requirements
Lynnhaven Inlet	0	141,000	719,000	Dredging in FY 90 and FY 91
Norfolk Harbor	3,391,000	2,055,000	4,160,000	Variation in dredging requirements
Oyster Channel	0	0	328,000	Periodic dredging in FY 91
Parker Creek	0	0	274,000	Periodic dredging in FY 91

NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation: (Cont'd)

a. Channels and Harbors (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
Virginia (Cont'd)				
Queens Creek	0	87,000	260,000	Dredging in FY 90 and FY 91
Quinby Creek	0	0	366,000	Periodic dredging in FY 91
Starlings Creek	0	0	360,000	Periodic dredging in FY 91
Tangier Channel	9,000	0	427,000	Perform channel condition survey in FY 89 and periodic dredging in FY 91

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APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation: (Cont'd)

a. Channels and Harbors (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
Virginia (Cont'd)				
Thimble Shoal Channel	1,090,000	90,000	1,405,000	Variation in dredging requirements
Tylers Beach	0	0	201,000	Periodic dredging in FY 91
Waterway on the Coast of Virginia	996,000	1,134,000	1,054,000	Variation in dredging requirements
Winter Harbor	0	0	385,000	Periodic dredging in FY 91
Other Projects Maintained Periodically	3,358,000	10,475,000		
Total - Channels & Harbors	63,977,000	90,987,000	99,258,000	

b. Locks & Dams - NONE

TOTAL NAVIGATION	63,977,000	90,987,000	99,258,000

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NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control

a. Reservoirs

The program request of $15,681,000 provides for the operational requirements of 20 flood control reservoirs and scheduling of flood control reservoir operation. Requirements include: operation and ordinary maintenance of project facilities; labor, supplies, materials and parts required for day-to-day functioning; periodic maintenance, repairs and replacements; and contract law enforcement. The requested amount also includes application of special recreation use fees for recreation areas.

PROJECT	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
Maryland				
Jennings Randolph Lake MD & W. VA	1,176,000	1,213,000	1,203,000	Repair tower and perform sedimentation survey in FY 90
New York				
Almond Lake	322,000	282,000	278,000	Repave roads and replace tractor in FY 89
Arkport Dam	141,000	147,000	167,000	Increased stream gage costs in FY 91

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NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	 Estimated FY 1990 $	 Estimated FY 1991 $	Explanation of Major Changes
New York (Cont'd)				
East Sidney Lake	1,131,000	542,000	294,000	Stabilize existing weir structure in FY 89 and FY 90
Whitney Point Lake	732,000	430,000	1,072,000	Replace guard rails and stabilize existing weir structure in FY 89; repair west wall and concrete deterioration in FY 91
Pennsylvania				
Alvin R. Bush Dam	426,000	362,000	402,000	Conduct periodic inspection, grade and resurface asphalt overlook and walkway in FY 89; increased stream gage costs in FY 91

NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
Pennsylvania (Cont'd)				
Aylesworth Creek Lake	214,000	135,000	152,000	Prepare flood emergency plan and conduct periodic inspection in FY 89; increased stream gage costs in FY 91
Beltzville Lake	421,000	627,000	731,000	Repave access road and replace trash rack bolts in FY 90; pave dam slope and abutment ditches in FY 91
Blue Marsh Lake	1,469,000	1,839,000	1,367,000	Repair sewage collection system in FY 89 and FY 90; bank stabilization in FY 90
Cowanesque Lake	1,042,000	1,176,000	1,135,000	Increased operational activities due to pool raising in FY 90 and expanded recreational facilities in FY 90 and FY 91

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)
a. Reservoirs (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	 Estimated FY 1990 $	 Estimated FY 1991 $	Explanation of Major Changes
Pennsylvania (Cont'd)				
Curwensville Lake	450,000	623,000	410,000	Install fuel tank and vault in FY 89; install automated monitoring system in FY 90
Foster Joseph Sayers Dam	550,000	466,000	508,000	Install piezometers, plant grass to eliminate dust problem, and prepare periodic inspection report in FY 89
Francis E. Walter Dam	577,000	589,000	445,000	Repair access roads in FY 89; replace generator and repair stop log structure in FY 90
General Edgar Jadwin Dam	130,000	277,000	255,000	Replace access road culvert in in FY 90; conduct periodic inspections, survey of dam monumentation, and develop historical properties management plan FY 91
Prompton Lake	517,000	433,000	379,000	Repair access roads in FY 89; install guard rail at dam crest in FY 90

NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	 Estimated FY 1990 $	 Estimated FY 1991 $	Explanation of Major Changes
Pennsylvania (Cont'd)				
Raystown Lake	2,500,000	2,145,000	1,978,000	Install remote gate operating system, repave and enlarge parking lot, replace trucks, and water treatment plant engineering and design in FY 89; reduced recreation management in FY 91
Stillwater Lake	392,000	211,000	235,000	Prepare flood emergency plan, conduct periodic inspection and purchase standby generator in FY 89; increased stream gage costs in FY 91
Tioga-Hammond Lakes	1,266,000	1,653,000	1,278,000	Replace piezometers in FY 90
York Indian Rock Dam	617,000	952,000	1,938,000	Remove sediment, repair drainage structures, flapgates, floodwalls, and replace riprap stones in FY 90 and FY 91

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NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	 Estimated FY 1990 $	 Estimated FY 1991 $	Explanation of Major Change
Virginia				
Gathright Dam and Lake Moomaw	1,088,000	1,220,000	1,341,000	Replace existing inoperable water control data system with a geostationary operational environmental satellite (GOES) system in FY 90 and FY 91
Total - Scheduling Flood Control Reservoir Operations	99,000	99,000	108,000	
TOTAL-Reservoirs	15,260,000	15,421,000	15,681,000	

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HARBOR DEEPENINGS

Mr. BEVILL. The Chair recognizes Mrs. Boggs.

Mrs. BOGGS. Thank you, Mr. Chairman.

Welcome, General, and congratulations on your new position. We are very happy to have you with us, all of you.

General BROWN. Thank you very much, ma'am.

Mrs. BOGGS. I was interested, Mr. Chairman, in the emphasis on both the Norfolk Harbor channelization to 55 feet and the one to 50 feet in Baltimore. I wondered if there was going to be a new emphasis in the Corps on making certain that the port cities and harbors were channelized to proper depths for the kind of commerce and the size of the ships that engage in that commerce?

General BROWN. Thank you very much for that question, ma'am. We have very close relationships with and ongoing work in all of our ports. Four of the Nation's largest ports are within North Atlantic Division. We are committed to working with our local port authorities to keep the channels open and dredged to meet the commerce needs of this Nation as it comes through our ports. Right now, with the funds that we are requesting and with the funds that you have provided us in the past, I see no problem in doing just that.

Mrs. BOGGS. Thank you very much. Thank you, Mr. Chairman.

RESERVOIR STORAGE REALLOCATION

Mr. BEVILL. Will the proposed reallocation of reservoir storage at Jennings Randolph Lake require authorization by the Congress?

General BROWN. Mr. Chairman, we presently believe that it will not.

The Chief of Engineers has the authority to make minor reallocations—not to exceed 15 percent of the project storage capacity or 50,000 acre-feet, whichever is less. The reallocation that we are currently considering at the request of non-Federal interests for Jennings Randolph is within these limits.

AIWW BRIDGE AT GREAT BRIDGE, VA

Mr. BEVILL. Will replacement of the existing bridge at Great Bridge, Virginia, require Congressional authorization?

General BROWN. Yes, Mr. Chairman, it will.

Mr. BEVILL. Thank you.

I have several other questions here that I am going to submit for the record. I also have questions from Mr. Conte for you to answer for the record.

[The information follows:]

QUESTIONS FROM CONGRESSMAN BEVILL

CHESAPEAKE AND DELAWARE CANAL - BALTIMORE HARBOR CONNECTING CHANNELS,(DEEPENING) DE & MD

Mr. Bevill. Why has the scheduled completion date for the Chesapeake and Delaware Canal-Baltimore Harbor Connecting Channels study slipped from October 1994 to March 1995?

General Brown. Sir, the 5 month delay is due to new study review procedures.

HUDSON RIVER CHANNEL, NY

Mr. Bevill. In fiscal year 1990, $250,000 was appropriated for the Hudson River, NY, study. Why is only $25,000 being allocated?

General Brown. Sir, the $25,000 being allocated to the Hudson River Channel study is the maximum amount that can be utilized in fiscal year 1990. The $250,000 was appropriated to initiate the feasibility study in the second quarter of the fiscal year. A six month delay in completion of the reconnaissance phase has resulted in the $225,000 reduction in our fiscal year 1990 funding requirement for the feasibility phase.

HACKENSACK RIVER, NJ & NY

Mr. Bevill. Why have no funds been requested to continue the Hackensack River, NJ and NY, study?

General Brown. Sir, we have concluded our studies since the reconnaissance report found no economically feasible solutions to the flooding problems.

JENNINGS RANDOLPH LAKE, MD & WV, CURWENSVILLE LAKE REALLOCATION, PA & RAYSTOWN LAKE REALLOCATION, PA

Mr. Bevill. Do the proposed reallocations of reservoir storage at Jennings Randolph Lake, MD & WV, Curwensville Lake, PA and Raystown Lake, PA, require Congressional authorization?

General Brown. Sir, the Chief of Engineers may approve storage reallocation up to 15 per cent of a project's total capacity or 50,000 acre feet, whichever is less. There are considerations other than the amount of storage that would necessitate congressional authorization. These are major structural or operational changes and severe effects on other authorized project purposes. As we are just initiating our feasibility studies for these lakes, I can not say with any certainty what the results of the studies will be. However, based on local interest desires, it appears that the Jennings Randolph and Curwensville reallocations would not need Congressional authorization, but the Raystown reallocation would.

NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

b. Channel Improvement, Inspection and Miscellaneous Maintenance

The program request of $2,558,000 provides for the essential annual requirements of 2 local flood protection projects including 10 separate units of the southern New York projects, and inspection of 73 completed projects during the budget year.

PROJECT	OBLIGATIONS Actual FY 1989 $	OBLIGATIONS Estimated FY 1990 $	OBLIGATIONS Estimated FY 1991 $	Explanation of Major Changes
Southern New York Flood Control Projects	765,000	1,236,000	2,106,000	Remove sediment, repair floodwalls, and replace riprap stones at Hornell, NY in FY 90 and FY 91
Cumberland, MD & Ridgeley, W. VA	72,000	68,000	79,000	Increased stream gage costs in FY 91
Inspection of Completed Works	443,000	370,000	373,000	Design deficiency report in FY 89
Total - Channel Improvements, Inspections, & Miscellaneous Maintenance	1,280,000	1,674,000	2,558,000	
TOTAL - FLOOD CONTROL	16,540,000	17,095,000	18,239,000	

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NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

3. Multiple Purpose Power Projects - None

4. Protection of Navigation

The program request of $9,082,000 provides for accomplishing the work essential to the administration and enforcement of specific laws enacted for the protection of navigation, including the prevention of obstructive and injurious deposits in the tidal waters of 3 major harbors; removal of drift and debris and project conditions surveys.

PROJECT	OBLIGATIONS Actual FY 1989 $	 Estimated FY 1990 $	 Estimated FY 1991 $	Explanation of Major Changes
Prevention of Obstructive Deposits	1,615,000	1,402,000	1,500,000	Variation in operational requirements
New York Harbor	(724,000)	(535,000)	(605,000)	
Baltimore Harbor	(372,000)	(393,000)	(375,000)	
Norfolk Harbor	(519,000)	(474,000)	(520,000)	

NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

4. Protection of Navigation (Cont'd)

PROJECT	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
Drift Removal:	4,584,000	4,104,000	4,385,000	
New York Harbor	(3,651,000)	(3,169,000)	(3,290,000)	
Baltimore Harbor	(224,000)	(272,000)	(294,000)	
Hampton Roads, Norfolk & Newport News Harbor	(193,000)	(189,000)	(216,000)	
Potomac & Anacostia Rivers Drift Removal, Washington Metropolitan Area	(516,000)	(474,000)	(585,000)	
Project Condition Surveys	2,721,000	2,312,000	3,197,000	
TOTAL - PROTECTION OF NAVIGATION	8,920,000	7,818,000	9,082,000	
GRAND TOTAL - NORTH ATLANTIC DIVISION	89,437,000	115,900,000	126,579,000	

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APPROPRIATION TITLE: Operation and Maintenance, General Major Rehabilitation - Channels and Harbors (Navigation)

PROJECT: Inland Waterway, Delaware River to Chesapeake Bay, Delaware & Maryland - C&D Canal Bridges (St. Georges Bridge & Summit Bridge) (Continuing)

LOCATION: The Chesapeake and Delaware Canal is part of the Inland Waterway which connects the Delaware River with the Chesapeake Bay. The Canal is crossed by four high-level fixed highway bridges and a railroad bridge lift span. The Summit Bridge, which carries U.S. Route 301 and Delaware State Routes 71 and 896 over the Chesapeake and Delaware Canal at Summit, Delaware, is a fixed, high-level, four-lane highway structure constructed in 1957-59. The St. Georges Bridge, which carries U.S. Route 13 over the Chesapeake and Delaware Canal at St. Georges, Delaware is a fixed, high-level, four-lane highway structure constructed in 1940-41.

DESCRIPTION: The plan of improvement consists of the rehabilitation of two high-level fixed highway bridges.

AUTHORIZATION: The Chesapeake and Delaware Canal was authorized by the River and Harbor Act of March 2, 1919 and modified by the River and Harbor Acts of January 21, 1926, July 3, 1935, August 7, 1939 and September 3, 1954. The construction of the St. Georges Bridge was authorized by the River and Harbor Act of August 7, 1939, while the Summit Bridge construction was authorized by the 3 September 1954 Act.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because monetary benefits have not been quantified.

TOTAL BENEFIT-COST RATIO: Not applicable.

INITIAL BENEFIT-COST RATIO: Not applicable.

BASIS OF BENEFIT-COST RATIO: Not applicable because monetary benefits have not been quantified.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$20,868,000
Estimated non-Federal Cost		0
Cash Contribution	$0	
Other	$0	
Total Estimated Project Cost		$20,868,000 1/

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Summit Bridge	100	May 1988
St. Georges Bridge	3	Sep 1991
Entire Project	50	Sep 1991

1/ Summit Cost ($9,682,000);
St. Georges Cost ($11,186,000)

		Accumulated Percentage Of Estimated Federal Cost
Allocations to 30 September 1989	$ 10,368,000	
Conference Allowance for FY 1990	8,035,000	
Allocation for FY 1990	3,275,000 1/	
Allocations through FY 1990	13,643,000	65
Allocation Requested for FY 1991	7,225,000	100
Scheduled Balance to Complete after FY 1991	0	
Unscheduled Balance to Complete after FY 1991	0	100

1/Reflects $ 4,760,000 reprogrammed from the project.

PHYSICAL DATA:
Summit Bridge: Total length is 2,058 feet with a roadway width of 61 feet.
St. Georges Bridge: Total length is 4,209 feet with a roadway width of 52 feet.

The work consists of repairing the worn concrete deck, strengthening the supporting steel members to carry modern traffic loadings without being overstressed, removing steel railing between abutments, and installing a new surface overlay with modern traffic protection median barrier parapet.

JUSTIFICATION: Major rehabilitation of the Summit Bridge deck which was completed in FY 1988 included the repair of areas of severe cracking with moisture penetration and leaching. The deck slab in the outside traffic lane was moving vertically relative to the stringer top flanges. Water seeping through cracks and joints had resulted in structural steel cross section loss at several locations on the superstructure. Summit Bridge carries an Annual Average Daily Traffic (AADT) volume of 14,700 vehicles (1988 figures).

At present, the St. Georges Bridge deck is worn with map cracking, exposed polished aggregate, and exposed reinforcing bars. The deck expansion joints are failing requiring emergency repair methods. One recently repaired joint broke loose and flew off the bridge falling to the village below (steel plate 8"x72"). Cracks in the structural supporting members have also been found requiring emergency repairs. These developments have forced the detour of trucks off the bridge until the rehabilitation is completed. Water seeping through cracks and joints is causing deterioration and rusting of stay-in-place deck forms and supporting structural steel. Because St. Georges Bridge carries U.S. Route 13 which is the main link uniting the economy of the Delmarva Peninsula, it is essential to proceed immediately with these repairs to avoid further deterioration and adverse impacts to the state's economy. It is estimated that yearly maintenance costs will increase as the rate of slab and steel deterioration increases. The bridge carries an AADT volume of 37,300 vehicles (1988 figures).

FISCAL YEAR 1991: The requested funding will be applied as follows:

St. Georges Bridge Contract	$6,700,000
E&D During Construction	100,000
S&A During Construction	425,000
TOTAL	$7,225,000

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NON-FEDERAL COST: The Summit Bridge and St. Georges Bridge are owned and operated by the United States Government. No local financing and cost sharing are involved in this Major Rehabilitation Project.

STATUS OF LOCAL COOPERATION: N/A

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $20,868,000 is a decrease of $6,132,000 from the latest estimate ($27,000,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 400,000
Post contract award and other estimating adjustments	-6,532,000
TOTAL	-$6,132,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A Final EIS for the Inland Waterway, Delaware River to Chesapeake Bay, was filed with the Council on Environmental Quality on 13 May 1974. Environmental Assessments for Summit Bridge and St. Georges Bridge were completed on 21 August 1986 and 23 December 1986 respectively.

OTHER INFORMATION: FY 1990 funds are being used to initiate rehabilition of the on St. Georges Bridge to replace deteriorated joints, repair and strengthen critical structural members, repair the existing concrete deck, install an overlay and make other incidential repairs. These repairs will be made with the minimum possible lane closures and traffic disruption.

JUNIATA RIVER AND TRIBUTARIES, PA

Mr. Bevill. Will the studies underway for the Juniata River and Tributaries project include an examination of the flood warning and response system authorized by Section 17 of the Water Resources Development Act of 1988?

General Brown. Yes, sir. Our study is investigating a flood warning and response system in the basin.

SCHUYLKILL RIVER BASIN, PA

Mr. Bevill. What is the status of the Schuylkill River Basin study?

General Brown. Sir, the ongoing study for the Schuylkill River Basin will complete with the funds provided in fiscal year 1990 in October of this year. To date, there are three areas that show promise for being studied in greater detail.

SUSQUEHANNA RIVER BASIN (FLOOD DAMAGE PREVENTION), PA

Mr. Bevill. What is the status of the Susquehanna River Basin (Flood Damage Prevention) study?

General Brown. Sir, this study has been postponed until local interests can provide the cost sharing necessary to conduct this study.

WAYNESBORO, VA

Mr. Bevill. What is the status of the Waynesboro, Virginia study?

General Brown. Sir, the Waynesboro, Virginia reconnaissance report concluded that there were no economically feasible solutions to the flooding problems in this community. No additional work is anticipated.

CHESAPEAKE BAY TIME VARIABLE MODEL, MD, VA, PA & DC

Mr. Bevill. Please bring the Committee up to date on the Chesapeake Bay Time Variable Model project.

General Brown. Sir, rigorous testing of the hydrodynamic model has been conducted to ensure that the model is working properly and according to sound scientific principles. The hydrodynamic model has been calibrated using three separate data sets representing a high freshwater inflow event, a significant wind-mixing event and an average annual event. Some model runs have been produced which are being used to run the water quality portion of the overall model. The results of these efforts have been reported on a monthly basis to the interagency Chesapeake Bay Program.

Mr. Bevill. How will the model be used?

General Brown. Sir, the model will be used by decision makers to develop prudent strategies regarding water quality improvement for the Chesapeake Bay to guide major capital investments for clean-up activities. The model will also have significant benefit to the Corps of Engineers extending across all mission areas, including water resource planning, regulatory functions, operations and maintenance and military technical support. I view the model as having many benefits for the Corps of Engineers, the Environmental Protection Agency and others. This modeling initiative is an integral part of the interagency Chesapeake Bay Program strategy for bay restoration.

NEW JERSEY INTRACOASTAL WATERWAY - MIDDLE THOROFARE AND OTTENS HARBORS

Mr. Bevill. What is the status of preconstruction engineering and design for the New Jersey Intracoastal Waterway, Middle Thorofare Harbor and Ottens Harbor projects?

General Brown. Sir, we did not start preconstruction engineering and design efforts on either project. Our recently completed feasibility report found both projects to be justified; however, the sponsor has opted for constructing the projects under the Continuing Authorities Program. The present schedule calls for initiation of plans and specifications for both projects later this year.

DELAWARE RIVER, PHILADELPHIA, PA TO TRENTON, NJ (TIOGA MARINE TERMINAL)

Mr. Bevill. Why has the completion date for preconstruction engineering and design for the Delaware River, Philadelphia to Trenton (Tioga Marine Terminal) project slipped from July 1991 to May 1992?

General Brown. Sir, The 10 month delay is due to the late initiation of the study due to a delay in receipt of a letter of intent from the non-Federal sponsor.

PRECONSTRUCTION ENGINEERING AND DESIGN COMPLETIONS

Mr. Bevill. Please provide for the record a list of preconstruction engineering and design projects that will be completed in fiscal year 1990.

General Brown. Sir, in FY 1990 we intend to complete 6 preconstruction engineering and design projects: Atlantic Coast of Maryland; Delaware River in the Vicinity of Camden (Beckett Street Terminal), New Jersey; Great Egg Harbor Inlet and Peck Beach, New Jersey; Shinnecock Inlet, New York; Westchester County Streams - Mamaroneck & Sheldrake River Basins, Village of Mamaroneck, New York; and Washington DC and Vicinity. We will also complete Phase I of Advanced Engineering and Design for Buena Vista, Virginia.

PASSAIC RIVER MAIN STEM, NJ

Mr. Bevill. What is the status of your design work for the Passaic River Main Stem, New Jersey, project?

General Brown. Sir, we are on schedule to complete the preconstruction engineering and design effort in September 1995. With the funds provided in fiscal year 1990, we are continuing with preconstruction engineering and design activities including the completion of cost estimates and scheduling for the design effort and initiation of topographic mapping and subsurface testing.

Mr. Bevill. Has the location of the main tunnel outlet been finalized?

General Brown. Sir, I am continuing preconstruction engineering and design activities on the plan recommended in the report of the Chief of Engineers dated 3 February 1989. I will continue on this course unless Congress authorizes a plan which includes a different location for the main tunnel outlet, or the local sponsor requests a different location and is willing to provide any additional cost for that alternative.

WYOMING VALLEY (LEVEE RAISING), PA

Mr. Bevill. Are you complying with the direction provided in Section 101 of Public Law 101-101, the fiscal year 1990 Energy and Water Development Appropriations Act, relating to the design of the Wyoming Valley, Pennsylvania, project?

General Brown. Sir, as directed by Section 101 of Public Law 101-101, the Energy and Water Development Appropriations Act, we are continuing our preconstruction engineering and design activities towards the Agnes level of protection while analyzing the freeboard allowance for the project levee system.

Mr. Bevill. Why have no funds been requested to continue this work in fiscal year 1991?

General Brown. Sir, We need to perform more detailed analyses of the effectiveness of the existing levee system and any project modification that would increase the level of protection. Because there are unresolved issues concerning the project's economics and design, no funds were requested to continue work on this project in fiscal year 1991.

BUENA VISTA, VA

Mr. Bevill. What is the status of preconstruction engineering and design for the Buena Vista, Virginia, project?

General Brown. Sir, we estimate completion of Phase I of advanced engineering and design for the Buena Vista, Virginia, project in March 1990. Preconstruction engineering and design is scheduled to be initiated in April 1990.

ATLANTIC COAST OF NEW YORK CITY, ROCKAWAY INLET TO NORTON POINT, (CONEY ISLAND), NY

Mr. Bevill. In fiscal year 1990, an additional $100,000 was provided for preconstruction engineering and design of the Atlantic Coast of New York City project. How are these funds being utilized?

General Brown. Sir, the additional $100,000 provided for preconstruction engineering and design of the Atlantic Coast of New York City project are being utilized to accelerate completion of the project design by 13 months.

RAMAPO AND MAHWAH RIVERS, NY & NJ

Mr. Bevill. What is the status of the Ramapo and Mahwah Rivers project, which was a fiscal year 1990 new construction start?

General Brown. Sir, construction has been delayed because of additional structural and foundation requirements identified in surveys performed during preparation of plans and specifications. We are currently evaluating the impact any modifications will have on the construction cost and schedule.

LOCK HAVEN, PA

Mr. Bevill. Please explain the purpose of the sanitary pumping station to be constructed as part of the Lock Haven, Pennsylvania project.

General Brown. Sir, the purpose of the sanitary pumping station to be constructed as part of the Lock Haven, Pennsylvania, project is to lift sanitary effluent or sanitary bypass flows over the line of protection of the project during high river stages.

BALTIMORE HARBOR AND CHANNELS, MD & VA

Mr. Bevill. Will the initial phase of the Baltimore Harbor deepening project be completed this fiscal year as scheduled?

General Brown. No, sir. The initial phase of the Baltimore deepening project is anticipated to be completed in October 1990, which is one month later than the September 1990 date reported to Congress last year and reflects the delayed award of a Maryland Channels contract.

FIRE ISLAND INLET TO JONES INLET, NY

Mr. Bevill. Why are Operations and Maintenance funds being used in fiscal year 1990 for the Fire Island Inlet to Jones Inlet, New York, construction project?

General Brown. Sir, in fiscal year 1990 we are utilizing Operations and Maintenance funds to maintain the navigation channel in Fire Island Inlet and place the dredged material along Gilgo Beach for shore protection purposes. Our fiscal year 1991 budget request allocates costs between the navigation (Operations and Maintenance) and shore protection (Construction, General) purposes of the project.

HEMPSTEAD HARBOR, NY

Mr. Bevill. Why has there been a delay of one year in executing the local cooperation agreement for the Hempstead Harbor, NY, project?

General Brown. Sir, the execution of the local cooperation agreement was delayed to await completion of the General Design Memorandum and to obtain the local sponsor's financing plan.

Mr. Bevill. Are you confident that the local cooperation agreement will be executed this fiscal year?

General Brown. Sir, I am confident that the local cooperation agreement will be executed this fiscal year. The General Design Memorandum is complete, plans and specifications are being prepared, and the local sponsor has funds available for this project.

KILL VAN KULL AND NEWARK BAY CHANNELS, NY & NJ

Mr. Bevill. Please explain the $75,600,000 increase in the estimated cost of the Kill Van Kull and Newark Bay project?

General Brown. Sir, the $75,600,000 increase in the estimated cost of the Kill Van Kull and Newark Bay project reflects adjustments in the estimated inflation allowance through the construction period and the results of information obtained from recent bid openings which identified a much larger cost for rock removal.

Mr. Bevill. Why were no funds requested for this project in fiscal year 1990?

General Brown. Sir, no additional funds were requested for this project in fiscal year 1990 due to contracting problems and differing site conditions encountered. In addition, extensive coordination with the Coast Guard and the Maritime Industry was necessary to assure harbor safety during construction, which also delayed the project. Sufficient carry over funds are available to perform work now scheduled for fiscal year 1990.

SANDY HOOK TO BARNEGAT INLET, NJ

Mr. Bevill. How are the funds provided in fiscal year 1990 for the Sandy Hook to Barnegat Inlet, New Jersey, project being utilized?

General Brown. Sir, funds provided in fiscal year 1990 will be used to complete plans and specifications and initiate construction for Section I, Seabright to Ocean Township. We will also continue with preconstruction engineering and design for Section II, Asbury Park to Manasquan.

FRANCIS E. WALTER DAM, PA

Mr. Bevill. Has there been any progress on the Francis E. Walter Dam, Pennsylvania, project?

General Brown. No, sir. Initiation of construction of the Francis E. Walter Dam, Pennsylvania, project is still delayed pending the sponsor's resolution of funding for the non-Federal share of project costs.

TAMAQUA, PA

Mr. Bevill. What is the status of the Tamaqua, Pennsylvania, project?

General Brown. Sir, plans and specifications for this project are complete. Initiation of construction has been delayed pending the Borough of Tamaqua's resolution of funding for the non-Federal share with the Commonwealth of Pennsylvania and execution of the local cooperation agreement.

JAMES RIVER 35 FOOT CHANNEL, VA

Mr. Bevill. In fiscal year 1990, $25,000 was provided for the Corps of Engineers to review design documents of the local sponsor relative to the James River, 35-foot channel, Virginia, project. What is the status of that work?

General Brown. Sir, this effort has not begun. The funds were provided to allow the Corps to review and approve improvements planned to be undertaken by the local sponsor. To date, we have not received any plans for review.

SHINNECOCK INLET, NY

Mr. Bevill. Are the funds provided in fiscal year 1990 for the Shinnecock Inlet, New York, project being utilized?

General Brown. Sir, the funds provided in fiscal year 1990 will be utilized to complete plans and specifications and initiate the dredging work to solve the critical navigation problem in the inlet, after execution of a local cooperation agreement.

Mr. Bevill. Why have no funds been requested to continue this project in fiscal year 1991?

General Brown. Sir, the high operation and maintenance cost and proportion of recreation benefits, together with the fact that an administration policy review of this project has not been completed, account for the lack of budgetary priority being accorded to Shinnecock Inlet in fiscal year 1991. The Office of Management and Budget currently has under review an updated analysis of the project.

Mr. Bevill. What will become of the project if it is not continued in fiscal year 1991?

General Brown. Sir, since no funds are requested in fiscal year 1991, the jetty will continue to deteriorate, erosion will continue along the site of the proposed revetment along the bay shore, and the offshore bar will eventually reform. Also, the cost estimate for the remaining work will increase due to inflation.

NEW YORK HARBOR COLLECTION AND REMOVAL OF DRIFT, NY & NJ

Mr. Bevill. What work will you perform in fiscal year 1990 under the NY Harbor Collection and Removal of Drift project?

General Brown. Sir, fiscal year 1990 funds will be utilized to initiate an economic reanalysis for the overall project, which is required by current budget guidelines. With prior year funds, we will continue work on the Weehawken to Edgewater and Hoboken reaches of the project.

BARNEGAT INLET, NJ

Mr. Bevill. In fiscal year 1990 funds were provided for maintenance dredging of the Barnegat Inlet project in New Jersey. What is the status of that work?

General Brown. Sir, the Corps of Engineers dredge Currituck is scheduled to dredge Barnegat Inlet this spring and during the late summer.

CHEESEQUAKE CREEK, NJ

Mr. Bevill. In fiscal year 1990 funds were provided for maintenance dredging of the Cheesequake Creek project in New Jersey. What is the status of that work?

General Brown. Sir, plans and specifications for required maintenance dredging of Cheesequake Creek are scheduled to be completed during the fourth quarter with funds provided.

COHANSEY RIVER, NJ

Mr. Bevill. In fiscal year 1990 funds were provided for maintenance dredging of the Cohansey River project in New Jersey. What is the status of that work?

General Brown. Sir, the maintenance dredging on the Cohansey River will commence on 22 February 1990.

MATAWAN CREEK, NJ

Mr. Bevill. In fiscal year 1990 funds were provided for maintenance dredging of the Matawan Creek project in New Jersey. What is the status of that work?

General Brown. A maintenance dredging contract for dredging Matawan Creek is scheduled for award this spring.

SHREWSBURY RIVER, NJ

Mr. Bevill. In fiscal year 1990 funds were provided for maintenance dredging of the Shrewsbury River project in New Jersey. What is the status of that work?

General Brown. Sir, a maintenance dredging contract for dredging the Shrewsbury River is scheduled for award this spring.

APPOMATTOX RIVER, VA

Mr. Bevill. What is the status of maintenance dredging of the Appomattox River, Virginia, project?

General Brown. Sir, I am currently working to resolve two environmental issues prior to initiating the maintenance dredging of the project; mitigation of wetlands that require removal and further analysis of toxicity level of dredged material after disposal. I expect to award a continuing contract to dredge the project during late fiscal year 1990 or early fiscal year 1991.

INLAND WATERWAY, DELAWARE RIVER TO CHESAPEAKE BAY, DE & MD
CHESAPEAKE AND DELAWARE CANAL BRIDGES
(ST. GEORGE BRIDGE AND SUMMIT BRIDGE)

Mr. Bevill. What steps have you taken to minimize the disruption to traffic during major rehabilitation of the St. George Bridge in Delaware?

General Brown. Sir, in order to minimize disruption of traffic during the major rehabilitation of the St. George Bridge, I am performing the work under two construction contracts. The initial construction contract, scheduled for a 60 day period late this spring, will require detouring of all southbound traffic over the Summit or Reedy Point Bridges. The second contract, scheduled for award in September 1990, will only affect traffic during night and off peak hours. Both contracts will require that a minimum of two lanes on St. George Bridge be open at all times. The State of Delaware concurs in this concept.

QUESTIONS SUBMITTED BY CONGRESSMAN CONTE

IMPACTS OF SEQUESTRATION

Question. Please describe and quantify the impacts of sequestration on your Fiscal Year 1990 operating program.

Answer. Sir, in accordance with Gramm-Rudman-Hollings law, 1.4 percent of the amounts appropriated for our programs, projects, and activities was sequestered. The total sequestration for the North Atlantic Division's Civil Works program was $2,853,000. Given our reprogramming authority, we expect the resultant impact from slippage in the execution of the funded activities and projects to be minor.

FEDERAL EMPLOYEE DRUG TESTING PROGRAM

Question. Does the Division conduct any activities designed to reduce, eliminate or prevent the use of drugs?

Answer. The Division is in the process of instituting a program for the Division office and for the New York, Philadelphia, Baltimore and Norfolk districts. We hope to initiate this program within the next 60 days. In establishing the program, we are coordinating with the Criminal Investigations Division of the U.S. Army, the Federal Bureau of Investigations, the Assistant U.S. Attorneys and local law enforcement officials.

Question: Please describe any such activities and quantify their costs and impacts.

Answer. At this time we can not assess the costs and impacts of the program. Once the program is fully implemented, we will then be able to assess its effects.

INLAND WATERWAY, DELAWARE RIVER TO CHESAPEAKE BAY, DE & MD CHESAPEAKE AND DELAWARE CANAL BRIDGES (ST. GEORGE BRIDGE AND SUMMIT BRIDGE)

Question: Will repairs to St. George Bridge across the Chesapeake & Delaware Canal forestall the need to construct a new bridge across the waterway?

Answer: Repairing the existing St. George Bridge will forestall any requirement to construct a new bridge to replace the existing bridge. As you know, however, the State of Delaware is considering constructing a second bridge, which also would cross the canal, in connection with the construction of U.S. 13 Relief Route. Repair of the existing bridge would not obviate any separate state need to construct a bridge in connection with that highway construction.

Question: Please provide for the record your response to interests in Delaware which insist that the Corps of Engineers has a contractual obligation to construct a new highway bridge over the canal.

Answer. Sir, the letter forwarded to interested parties concerning the Corps contractual obligation to construct a U.S. 13 Relief Route bridge over the Chesapeake and Delaware Canal follows:

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
WASHINGTON, DC 20310

20 JUL 1989

The Honorable Thomas R. Carper
House of Representatives
Washington, D. C. 20515

Dear Congressman Carper:

Thank you for your June 20, 1989, letter concerning the U. S. 13 Relief Route bridge. I forwarded your letter and the later letter and legal opinion that was sent to me on this same subject by Senator Biden to the General Counsel of the Department of the Army and asked her to provide me with a legal opinion which addresses the question of whether the Corps of Engineers is obligated to build or fund the construction of the new bridge necessary for the Relief Route.

The General Counsel has concluded that the Corps of Engineers is under no legal obligation to construct the new bridge and, further, that it lacks legal authority to construct the proposed bridge. The enclosed legal opinion more fully sets forth the General Counsel's views on this matter and is forwarded for your information.

Sincerely,

SIGNED

Robert W. Page
Assistant Secretary of the Army
(Civil Works)

Enclosure

DEPARTMENT OF THE ARMY
OFFICE OF THE GENERAL COUNSEL
WASHINGTON, DC 20310-0104

20 July 1989

MEMORANDUM FOR THE ASSISTANT SECRETARY OF THE ARMY
(CIVIL WORKS)

SUBJECT: St. Georges Bridge, Delaware

This responds to your request for a legal opinion addressing the issue of the Federal Government's authority to build and maintain bridges across the Chesapeake and Delaware (C & D) Canal. At issue is whether the Federal Government is obligated to construct and keep "good and sufficient" bridges across the canal by virtue of the legislation authorizing the purchase and improvement of the original C & D Canal, and, more specifically, whether the Corps is obligated to fund the construction of a new bridge needed for the U.S. Route 13 Relief Route currently under construction by the State of Delaware. Your request was prompted by two letters from the Delaware Congressional delegation which transmitted a memorandum on the issue prepared by a member of the Senate Judiciary Committee staff.

Based on that memorandum, the delegation has suggested that the Federal Government is legally obligated to construct the new bridge. According to this opinion, the obligation was created when the Corps acquired the canal from the C & D Canal Company through condemnation proceedings.

In our opinion, the Federal Government not only has no obligation, but also lacks legal authority to construct a new bridge for the U. S. Route 13 Relief Route. As discussed below, the legislative history of the Acts authorizing improvements to the canal makes clear that the acquisition of the original C & D Canal carried with it no obligations to the State of Delaware other than to reconstruct and maintain the existing bridges that crossed the canal. There is no indication in the project authorization that the Federal Government was to be required to provide other bridge crossings deemed necessary by the State of Delaware for adequate transport across the canal. In fact, Federal participation in constructing bridges over the canal has always been based on, and mandated by, specific congressional authorization. Therefore, authorizing legislation would be necessary for the Army Corps of Engineers to participate in the construction of the bridge for the U. S. Route 13 Relief Route.

Construction of the C & D Canal was authorized in the Rivers and Harbors Appropriations Act of 1917, Pub. L. No. 65-37, 40 Stat. 250, 253. As is typical with such legislation, Congress incorporated into its authorization the project recommendations developed by the Corps of Engineers. These project recommendations called for construction of a sea level canal along the route of the original canal built by the C & D Canal Company. See H.R. Doc. No. 391, 62d Cong., 2d Sess. (1912).

As part of the authorized plan, the Secretary of War was authorized, subject to later ratification and appropriation by Congress, to enter into negotiations for the purchase of the existing C & D Canal and all property, rights of property, franchises, and appurtenances used or acquired for use in connection with the canal, or, if unable to negotiate the purchase, to bring condemnation proceedings to acquire this property. In 1919, Congress provided an appropriation of $3,000,000 for improvement of the canal to a depth of twelve feet, specifying that $2,514,289.70 was eligible for payment for the existing canal property. See Rivers and Harbors Appropriations Act of 1919, Pub. L. No. 65-323, 40 Stat. 1275, 1277. Through these two enactments, Congress provided authorization and appropriations for the acquisition of the original C & D Canal and also provided for its subsequent improvement in accordance with the recommendations of the Corps of Engineers.

The authorized plan for improvement called for the construction of a sea level canal with an ultimate depth of twenty-five feet and a width of 125 feet. See H.R. Doc. No. 391, 62d Cong., 2d Sess. 23 (1912). Although several practicable canal routes were considered, the authorized plan called for construction using the Back Creek route, along the line of an existing canal owned by the Chesapeake & Delaware Canal Company. That canal was 36 feet wide, ten feet deep, and contained three locks that were 220 feet long and 24 feet wide. Id. at 85. Passage through the existing locks required the payment of a toll to the canal company. Additionally, the canal company owned six bridges it constructed over its canal in fulfillment of its obligation to the State of Delaware to "keep good and sufficient bridges" across the canal. This obligation was imposed on the company at the time of its incorporation by the State. See Act of General Assembly of Delaware, January 29, 1801 (Laws of Delaware, Vol. III, 170).

The authorizing documents explained that after the existing canal was acquired from the company, a new entrance channel would be constructed, the existing locks would be removed, and the canal would be initially deepened to a uniform depth of twelve feet with a width of 90 feet. See H.R. Rept. No. 46, 65th Cong., 1st Sess. 96 (1912). The authorized plan identified six highway bridges and one railroad bridge that would be affected by the enlargement of the canal, and called for the replacement of these bridges with larger, bascule-type drawbridges that would provide a clear width of waterway through each of the bridges of 150 feet. Id. at 94.

Thus, the Congressional authorization envisioned that the existing bridges would be replaced as a part of the construction of the enlarged canal. However, nothing in the project authorization suggests that Congress believed that by selecting the existing canal as the route for the authorized canal, it would become bound by any obligations between the State of Delaware and the existing owner. Rather, the authorization only envisioned the reconstruction of six higaway bridges and one railroad bridge. Further, it is clear that the bridges were authorized to be replaced only because the existing bridges would be destroyed during the widening and deepening process undertaken to accommodate the needs of navigation. Id.

As the canal continued to be improved over the years, there were other instances when new and improved bridges were constructed at Federal expense. For example, the Rivers and Harbors Act of 1939, Pub. L. No. 76-310, 53 Stat. 1240, authorized replacement of the St. Georges' drawbridge, destroyed by a ship collision, with a four-lane fixed span high level bridge over the canal. Pursuant to the Rivers and Harbors Act of 1954, Pub. L. No. 83-780, 68 Stat. 1248, 1249, similar modifications were made to the remainder of the bridges constructed as a result of the 1917 project authorization. This has resulted in the replacement of all bascule drawbridges with fixed span high level bridges over the canal. In each instance, construction of a new bridge was specifically authorized by an Act of Congress.

In summary, nothing in the legislative history suggests that the Federal Government is obligated to provide any and all bridges that might some day be necessary to provide sufficient access across the canal. Rather, the original project authorization provided limited authority to rebuild, on a one-time basis, seven bridges. Subsequent to this authorization, each time a bridge was modified, new legislation providing authority for the work was enacted by Congress. Taken as a whole, both the project authorization and practice of the Congress with respect to subsequent improvements makes clear that the Corps presently lacks authority to participate in the construction of the U. S. Route 13 Relief Route bridge.

We have reviewed the memorandum forwarded by Senator Biden and do not agree with its conclusions. That opinion asserts that, as a result of the condemnation of the original canal and its "franchises," the Federal Government became subject to the obligation of the C & D Canal Company to build sufficient bridges provided to the State by the original owner as a condition for the franchise to construct the canal. In support of this proposition, the opinion cites Monongahela Navigation Company v. United States, 148 U.S. 312 (1892). Monongahela involved a private canal company and the company's entitlement to compensation from the United States under the Fifth Amendment for the taking of the franchise's right to exact tolls, as well as its entitlement to compensation for the value of tangible property taken.

In our opinion, Monongahela is not dispositive because the case does not stand for the proposition that franchise obligations are binding on the Federal Government as a subsequent purchaser of property. Rather, the issue in that case was just compensation. In Monongahela, the Court ruled that the right to charge tolls conferred via franchise was an item of value that must be compensated for under the Fifth Amendment. 148 U.S. at 326.

It is clear from the legislative history of the 1917 authorization that Congress intended, consistent with Monongahela, that the current owner be compensated or the value of the franchise it received from the State of Delaware to collect tolls at the canal's three locks. For example, the record of the hearings held on the bill that was eventually enacted into law explains that Congress intended that the existing owner be compensated for the value of the original canal and the "value of the franchises and appurtenances." Hearings on H.R. 4285 Before the Committee on Rivers and Harbors, 65th Cong., 2d Sess. 39 (1917) (statement of Congressman Frear). In contrast, the legislative history does not suggest that in addition to paying just compensation for the value of the franchise, the Federal Government would become bound by the obligations of the original franchise holder.

The memorandum provided by Senator Biden also relies on testimony given by the Chief of Engineers during a hearing in 1926. This hearing concerned the Administration's legislative proposal to modify the 1917 project authorization to remove the requirement to rebuild the original Chesapeake City bridge across the canal. General Taylor, Chief of Engineers, explained that under the 1917 authorization, the Corps was required to replace all bridges that were in existence when the canal was acquired from the original owners. Hearings on H.R. 11176 Before the Committee on Rivers and Harbors, 69th Cong., 1st Sess. 39 (1926) (statement of General Taylor). Based on this authorization, the Corps had proceeded with the reconstruction of all of the bridges with the exception of the bridge at Chesapeake City, Maryland. The Corps hoped to save $300,000 by not replacing the bridge. After the affected citizens complained, General Taylor proposed as a compromise a plan to improve the roads to the adjoining bridges as a substitute for the Chesapeake City bridge. This would result in a $100,000 savings to the Federal Government. Because the 1917 project authorization provided for the reconstruction of a bridge at Chesapeake City, and did not provide authority for the compromise developed by General Taylor, new legislation was required.

General Taylor's testimony causes some confusion because in several places it speaks in terms of "obligations" owed to the State of Maryland and Delaware. However, when General Taylor's complete statement is examined, it becomes clear that the basis of the "obligation" to build the Chesapeake City bridge was the 1917 authorization providing for the reconstruction of the seven bridges that were affected by the improvement of the canal. For example, General Taylor explained that "[t]he enlargement of the canal, under the project, involved the reconstruction of those bridges," and "[i]t was plain in the document in which the project was outlined that it would devolve upon the United States to reconstruct those bridges." Id. Taylor went on to explain that because the 1917 authorization provided for the reconstruction of these bridges, it needed to be modified to allow for his proposed compromise because "[t]he project was not so worded that we could do that . . ." Id. at 40. Thus, the better interpretation of this testimony is that General Taylor was merely acknowledging that the original Congressional authorization required the Corps to replace the original seven bridges that would be removed during the improvement of the canal.

In conclusion, we believe that the Corps lacks authority to construct a new bridge for the U. S. Route 13 Relief Route. The history of Federal involvement with the C & D Canal makes clear that the Federal Government's obligation to construct bridges across the canal was limited to reconstruction of the original seven bridges affected by the deepening and widening of the canal. Over time, specific Congressional authorization was provided whenever new bridges were to be constructed by the Corps. Accordingly, absent additional legislation on this subject, the Corps may not construct or provide funding for the construction of the bridge.

If we can be of further assistance in this matter, please let us know.

Susan J. Crawford

Susan J. Crawford
General Counsel

SANDY HOOK TO BARNEGAT INLET, NJ

Question: Please identify the prospective sponsor or sponsors and timing and amount of all non-Federal financial obligations required for construction of the Sandy Hook to Barnegat Inlet project?

Answer: Sir, the non-Federal sponsor for the Sandy Hook to Barnegat Inlet is the State of New Jersey. The project consists of three sections. Section I, Sea Bright to Ocean Township, is scheduled for a construction award this fiscal year. Section II, Asbury Park to Manasquan, is presently under design. The costs for this section, therefore, are preliminary and subject to refinements during the design phase. Section III, Point Pleasant to Seaside Park is inactive. The total non-Federal cost for the Sandy Hook to Barnegat Inlet project is currently estimated at $366,600,000. The non-Federal sponsor is required to make all required payments concurrently with project construction. The fiscal year 1990 non-Federal contribution is $18,900,000 for lands, easements, rights-of-way and relocation costs. The fiscal year 1991 non-Federal contribution is estimated to be $4,439,000 including $1,579,000 in cash contributions.

CLOSING

Mr. **Bevill**. We appreciate your fine presentation and the good work you are doing.

General **Brown**. Thank you very much.

ADJOURNMENT

Mr. **Bevill**. We stand adjourned now until 10:00 in the morning.

WEDNESDAY, FEBRUARY 21, 1990.

LOWER MISSISSIPPI VALLEY DIVISION

WITNESSES

BRIGADIER GENERAL ARTHUR E. WILLIAMS, DIVISION ENGINEER AND PRESIDENT, MISSISSIPPI RIVER COMMISSION

FRED H. BAYLEY III, CHIEF, ENGINEERING DIVISION

EUGENE H. NETTLES, CHIEF. PROGRAMS MANAGEMENT OFFICE

WILLIAM H. REEVES, PROGRAMS MANAGEMENT OFFICE

Mr. BEVILL. The committee will come to order. First this morning, we have the Lower Mississippi Valley Division.

General Williams, we are pleased to have you here with us this morning, and you may proceed as you wish.

I am sure you will want to introduce those with you.

General WILLIAMS. Thank you, Mr. Chairman.

Mr. MYERS. Mr. Chairman, may I make a few remarks?

Mr. BEVILL. The Chair recognizes Mr. Myers.

Mr. MYERS. I am going to have to leave in about 10 minutes to go to another committee and beg for money. We have to go before the House Administration Committee, so please excuse me for a few minutes while we go with our tin cup in hand.

You know something about that—all of you out there. Even Members have to do that, too, once in a while.

General WILLIAMS. Mr. Chairman, I would like to introduce the members of my staff who will be assisting me in testimony.

Mr. Fred Bayley, Chief of my Engineering Division; Mr. Gene Nettles, Chief of Programs; his principal assistant, Mr. William Reeves.

In addition, seated behind me are my Chief of Planning, Mr. Randy Hanchey, and my executive assistant, Mr. Rodger Harris.

Mr. BEVILL. We are pleased to have each of you with us.

General WILLIAMS. Mr. Chairman, with your permission, I would like to present an oral summary of my status report and ask that the complete report be placed in the record of these hearings.

Mr. BEVILL. Without objection, your entire statement will be made a part of this record.

DROUGHT CONDITIONS—MISSISSIPPI AND MISSOURI RIVER BASINS

General WILLIAMS. Before I begin my presentation on the Fiscal Year 1991 budget, I would like to briefly discuss the impact on the continued drought as it affects navigation on the Mississippi River.

RIVER CONDITIONS IN THE VICINITY OF ST. LOUIS, MISSOURI

Except for a brief period last September, the river stage at St. Louis remained well below the 128-year daily mean throughout the year, and new record low daily stages were set in July and November.

Currently the stage at St. Louis is about three feet below the mean stage at this time in 1989. The Missouri River reservoir storage reached a record low in late October, and it will probably take more than six years of normal conditions to refill the reservoirs.

The continued drought required a considerable increase in dredging in an attempt to maintain the nine-foot navigation channel between St. Louis and Cairo.

During Fiscal Year 1988, we operated three dredges, and in Fiscal Year 1989, we had five dredges working. Fiscal Year 1990 appears to present a continued extensive dredging requirement. This year, we had five dredges working and had placed a sixth on location, when severe cold weather in December forced us to stop all dredging.

In January, we resumed operations with five dredges; however, with improved river conditions, we now have only two working.

In October 1988, we awarded a $13 million contract for the removal of rock formations that were obstructing navigation. With the new record low river stages, we encountered more rock obstructions and modified the contract for the removal of the rock.

This additional work will bring the total rock removal to 194,000 cubic yards and will cost about $20 million. The completion of the contract is scheduled for the fourth quarter of Fiscal Year 1990.

RIVER CONDITIONS NEAR LOCKS AND DAM 26

To complicate our river problems further, a backlog of over 1,000 barges developed at the Locks and Dam 26 in November. The backlog was created as a result of record low river stages, damage to the lock gates, increased grain shipments, the advancing cold weather and ice conditions, plus the limited locking capacity of the Locks and Dam 26. With a lot of hard work, the backlog was eliminated in a few weeks.

RIVER ICE

The severe cold weather presented us with another challenge in the form of ice, which caused us to stop dredging. It also shut down navigation at the confluence of the Missouri and Mississippi rivers, as well as other river reaches.

The Coast Guard subsequently closed the river to navigation from Alton to Cairo because of the low water and the loss of channel markers due to the ice. More favorable weather since early January has allowed near-normal traffic movements at Locks and Dam 26.

In spite of the problems I have just briefly covered, I think the shipping industry, the Coast Guard and the Corps of Engineers are working extremely well together, and that at the local level, we see this as a success story of team work.

PROGRAM SUMMARY

Moving now to my budget request, Mr. Chairman, as you know, my total program consists of two parts: the Lower Mississippi

Valley Division and the Mississippi River Commission. I will cover these two programs in some detail.

Our Fiscal Year 1991 total program requirement is $727.2 million, prior to any assignments of savings and slippage. This compares to $778.6 million allocated for Fiscal Year 1990.

The Construction program accounts for $436.3 million, or about 60 cents of each dollar. Our Operation and Maintenance of existing projects accounts for $276.1 million, or about 38 cents of each dollar. General Investigations are $9 million, or a little over 1 cent of each dollar, and the $5.8 million for our General Regulatory account is slightly less than 1 cent of each dollar.

LOWER MISSISSIPPI VALLEY DIVISION PROGRAM

Turning now to the Lower Mississippi Valley Division program, we have civil works responsibility in portions of seven States bordering the Mississippi River, from St. Louis to the Gulf of Mexico.

GENERAL INVESTIGATIONS

Our request of $6.3 million in fiscal year 1991, under the General Investigation Program, is $757,000 less than allocated in Fiscal Year 1990.

Our requested funds will provide for completion of one reconnaissance study, initiation of five feasibility studies and continuation of nine feasibility studies. In addition, we will continue five and complete one preconstruction engineering and design activity.

FEASIBILITY STUDIES

Let me briefly cover some of these studies.

MERMENTAU RIVER, GIWW TO THE GULF OF MEXICO, LOUISIANA

Our budget request includes funds for the initiation of the feasibility phase of the Mermentau River, GIWW to the Gulf of Mexico, study. This study, located in southwestern Louisiana, will consider providing a more direct navigation channel to the Gulf from ports in the area of Jennings, Louisiana.

LOUISIANA COASTAL AREA STUDIES

The loss of valuable marshland in the Louisiana coastal area continues to be a major concern. The budget request includes funds to continue a number of feasibility studies which address these concerns. We are working closely with other Federal, State and local agencies and private industry on this study to assure the most feasible solutions to the many problems are proposed. We have completed the reconnaissance phase of this Comprehensive Study, and the funds requested in Fiscal Year 1991 will continue the feasibility study.

JACKSON METROPOLITAN AREA, MISSISSIPPI

Reconnaissance studies for the Jackson, Mississippi, metropolitan area are scheduled for completion in December 1990. The funds requested for Fiscal Year 1991 will be used to initiate feasibility studies. The most likely solution is a comprehensive levee system which would incorporate the existing Jackson-East Jackson levees.

PRECONSTRUCTION ENGINEERING AND DESIGN

COMITE RIVER, LOUISIANA

After extensive evaluation of alternative plans for the Comite River, Louisiana, project, the diversion plan has been selected as the optimum plan. The estimated cost of the plan is approximately $60 million. The final feasibility report and environmental impact statement is scheduled to be completed in July 1990. Our Fiscal Year 1991 funds will be used to initiate preconstruction engineering and design efforts.

UPPER BAYOU TECHE, LOUISIANA

Subject to a feasible project report, the funds provided in Fiscal Year 1990 will be used to initiate preconstruction engineering and design on the Upper Bayou Teche project in Louisiana. Alternatives under consideration include channel enlargement, a conveyance channel and modification of operating procedures. Funds requested for Fiscal Year 1991 will be used to continue preconstruction engineering and design efforts.

COLDWATER CREEK, MISSOURI

The feasibility report for the Coldwater Creek project recommends flood protection for the highly urbanized area of north St. Louis county. The recommended project provides for channel improvement and associated works. The project area includes two radioactive materials storage sites. Radioactive materials also have been found in the sediments of Coldwater Creek downstream of the St. Louis International Airport. We are coordinating with the Department of Energy to assure that this part of our project and their plans for cleanup are mutually compatible. Fiscal Year 1991 funds will provide for continuation of the design work.

TANGIPAHOA, TCHEFUNCTE AND TICKFAW RIVERS, LOUISIANA

The Tangipahoa, Tchefuncte and Tickfaw Rivers study in Louisiana was authorized prior to any studies in the area. Therefore, we are conducting a reconnaissance study first and will initiate the feasibility study with the funds requested for Fiscal Year 1991.

CONSTRUCTION, GENERAL PROGRAM

Turning now to our construction program, our budget request of $210.1 million includes Inland Waterway Trust Funds of $37.5 million. Our request is a decrease of $79.3 million from our Fiscal Year 1990 allocation. These funds will provide for continuation of 15 projects and there are no new construction starts.

MELVIN PRICE LOCK AND DAM, ILLINOIS AND MISSOURI

Construction is progressing satisfactorily on the Melvin Price Lock and Dam project near Alton, Illinois. The first commercial tow was locked through on 10 October 1989. The contract for removal of portions of the old Locks and Dam 26 and the Burlington

Northern Railroad Bridge was awarded in October 1989 and is scheduled for completion in June, 1991.

MELVIN PRICE—SECOND LOCK, ILLINOIS AND MISSOURI

The contract for the second lock at Melvin Price Lock and Dam was awarded in October, 1989, and is scheduled for completion in October, 1992.

RED RIVER WATERWAY—MISSISSIPPI RIVER TO SHREVEPORT, LOUISIANA

As part of the Red River Waterway, Mississippi River to Shreveport, Louisiana, project, we presently have 15 channel improvement contracts underway with a total value of $75 million. Work is progressing satisfactorily on Lock and Dam 3 which will be completed in October 1991.

In addition to the $97 million requested in the Fiscal Year 1990 budget for the Red River waterway, Congress provided $4.8 million to initiate construction of Locks and Dams 4 and 5, three bank stabilization items in pool 1, and initiation of mitigation measures. Initiation of construction for Locks and Dams 4 and 5 will not meet the April, 1990 schedule directed by Congress due to delays in requesting rights-of-way. However, contract awards for both structures are anticipated by July, 1990. The Fiscal Year 1991 budget request of about $39.2 million does not include funds to continue construction of Locks and Dams 4 and 5.

MISSISSIPPI RIVER SHIP CHANNEL, GULF TO BATON ROUGE, LOUISIANA

On the Mississippi River Ship Channel, Gulf to Baton Rouge, Louisiana, project, construction of the 45-foot-deep channel from the Gulf to Mile 181 near Donaldsonville, Louisiana, was completed in late 1988. We estimate that about $700 million in average annual benefits are being generated by the completion of the 45-foot channel in this reach.

The State of Louisiana has expressed a desire to extend the 45-foot project to Baton Rouge, Louisiana. Our budget request includes funds to complete design studies on this next reach.

GRAND ISLE AND VICINITY HURRICANE PROTECTION, LOUISIANA

The sand dune on the Grand Isle and Vicinity Hurricane Protection project in Louisiana was further weakened by hurricanes this past year. We will begin dune repair and structural reinforcement in March, 1990. Discovery of a habitat for an endangered bird species, the Piping Plover, in the planned borrow pit has caused us to use another source of sand about a mile and a half offshore on the eastern end of the island. This will increase the repair cost from $12 million to $15 million.

LAKE PONTCHARTRAIN, LOUISIANA AND VICINITY HURRICANE PROTECTION

On the Lake Pontchartrain and Vicinity Hurricane Protection project, we will continue floodwall and levee construction work in Orleans, Jefferson, and St. Bernard parishes.

We will award the first item of construction in St. Charles Parish in late Fiscal Year 1990.

The Fiscal Year 1991 funds will be used, in part, to initiate and complete two floodwall capping contracts in the Chalmette area, complete the South Point to GIWW Levee, and initiate construction on the Orleans Outfall Canal in the New Orleans East unit.

The remaining Fiscal Year 1991 funds will be used to continue construction of levee and floodwall work in Jefferson and St. Charles Parishes.

LAROSE TO GOLDEN MEADOW, LOUISIANA

The Larose to Golden Meadow, Louisiana, project will provide hurricane protection to the inhabited land along Bayou Lafourche.

With funds requested in Fiscal Year 1991, we will initiate construction of the first lift of section D-North Levee. This is a milestone, since interim protection will be available to the entire area when this item is completed in September, 1992.

NEW ORLEANS TO VENICE, LOUISIANA, HURRICANE PROTECTION

The New Orleans to Venice, Louisiana, hurricane protection project will provide protection along both banks of the Mississippi River south of New Orleans.

Our first use of geotextile fabrics was on this project in October 1988. The fabric gives greater strength to the levee foundation and reduces the levee cross-section and the impact on wetlands. The use of this fabric will save the project approximately $69 million and prevent the loss of large areas of marsh.

WESTWEGO TO HARVEY CANAL HURRICANE PROTECTION

The Westwego to Harvey Canal project in the New Orleans area will provide hurricane protection to the urban areas between Westwego and the Harvey Canal by improving existing levees or constructing new levees and floodwalls.

The draft Local Cooperation Agreement has been signed and we will initiate construction on the first levee contract along Louisiana Highway 45 in July 1990.

Fiscal Year 1991 funds will be used to complete the first levee contract, complete mitigation, and initiate three floodwall and two levee contracts.

OPERATIONS AND MAINTENANCE, GENERAL

Our request for Operations and Maintenance, General, Funds in fiscal year 1991 amounts to $155.1 million, which is $9.4 million more than allocated in fiscal year 1990. Our request for funds is adequate to continue routine operation and maintenance activities at our completed projects.

The operation and maintenance program continues to fund bank restoration work associated with the Mississippi River from Baton Rouge to the Gulf project. This work was transferred from the construction program in Fiscal Year 1989. This bank restoration is designed to prevent further bankline erosion in the Southwest Pass of the Mississippi River below Venice and confine flow to the navigation channel, thus reducing the cost of annual maintenance dredging.

MISSISSIPPI RIVER COMMISSION PROGRAM

Now I will switch hats and discuss the Mississippi River and Tributaries Project. The MR&T project is in the alluvial valley of the Mississippi River from Cape Girardeau, Missouri, to the Gulf of Mexico. This project comes under my jurisdiction as President of the Mississippi River Commission. Our Fiscal Year 1991 MR&T budget request is for $349.9 million, which is $18.6 million more than our Fiscal Year 1990 allocation.

GENERAL INVESTIGATION PROGRAM

Funds in the amount of $2.7 million requested under the General Investigation category will provide for eight activities. We will continue two flood damage prevention feasibility studies and one fish and wildlife study, plus initiate one new preconstruction engineering and design project and continue three others.

SOUTHEAST ARKANSAS, ARKANSAS

Congress added $300,000 in Fiscal Year 1990 to initiate reconnaissance studies in southeast Arkansas. The purpose of this study is to develop with the Soil Conservation Service a multi-purpose flood control and agricultural water supply plan for six counties. Fiscal Year 1991 funds will provide for initiation of feasibility studies.

PRECONSTRUCTION ENGINEERING AND DESIGN

Funds requested in Fiscal Year 1991 will initiate one new preconstruction engineering and design study and continue three.

EASTERN ARKANSAS REGION, ARKANSAS

The one new preconstruction engineering and design project is the Eastern Arkansas Region Comprehensive study. The Fiscal Year 1991 funds will be used to initiate detail design of solutions to flooding, groundwater depletion, and other water related problems in a 24-county area in northeast Arkansas.

CONSTRUCTION PROGRAM

Next I will discuss our Mississippi River and Tributaries Construction program, for which we have requested $226.2 million for Fiscal Year 1991. These funds will allow us to continue 12 construction projects and continue one project under the Dam Safety Assurance program.

MISSISSIPPI RIVER LEVEES

Under the Mississippi River Levees project, we are continuing our intensive effort to upgrade the levee and floodwall system in the New Orleans metropolitan area. Fiscal Year 1991 funds will allow us to initiate, continue, or complete 19 contracts. Included are funds to award the Jackson to Thalia Phase 3 contract for the last one-tenth mile of floodwall through the metropolitan area.

CHANNEL IMPROVEMENT

Under the Channel Improvement project, about 942 miles of the 1,085 miles of authorized bank protection have been placed. We constructed 18.9 miles of revetments at 24 locations during the 1989 sinking season, and plan to place 21.5 miles of revetments at 28 locations during the 1990 sinking season.

ATCHAFALAYA BASIN FLOODWAY SYSTEM, LOUISIANA

In regard to the Atchafalaya Basin Floodway System project, in Fiscal Year 1989, we purchased over 6,000 acres of public access lands to be acquired in fee title from willing sellers. During Fiscal Year 1990 and Fiscal Year 1991, we will continue the purchase of public access lands, and will initiate acquisition of easements pertaining to developmental control, environmental protection, and flowage.

MISSISSIPPI DELTA REGION, LOUISIANA

The Mississippi Delta Region project authorizes structures to divert freshwater from the Mississippi River into adjacent coastal areas for purposes of salinity control and fish and wildlife enhancement. Saltwater intrusion is one of the main factors contributing to land loss and decreased productivity in Louisiana's coastal wetlands.

The Fiscal Year 1991 budget request includes funds for the completion of the Caernarvon structure on the east bank of the river in December, 1990.

We will also continue engineering and design plus initiate land acquisition for the Davis Pond diversion structure southwest of New Orleans. This freshwater diversion will preserve 83,000 acres of wetlands.

YAZOO BASIN, MISSISSIPPI

A reformulation of the Yazoo Basin project was initiated in February, 1989 to address concerns of whether the economic and environmental issues for work remaining to be constructed have been properly considered.

Funds available in Fiscal Year 1990 for the Demonstration Erosion Control program will provide for 30 contracts for bank stabilization, channel improvement, and grade control structures. Funds requested for Fiscal Year 1991 will provide for 67 similar structures.

NONCONNAH CREEK, TENNESSEE AND MISSISSIPPI

The Nonconnah Creek project located in Southwest Memphis is a new construction start for Fiscal Year 1990. The first item of work which consists of stabilization work at key bridge crossings is scheduled for initiation in July, 1990.

Funds requested for Fiscal Year 1991 will complete the bridge protection works, initiate protection works at the Burlington-Northern Railroad, and initiate the first item of channel improvement.

MEMPHIS HARBOR, ENSLEY BERM, TENNESSEE

In accordance with the Fiscal Year 1990 Appropriations Act, construction of the Ensley Berm in Memphis Harbor will be initiated with the award of a construction contract in June 1990. The funds requested for Fiscal Year 1991 will continue the berm construction contract, which is scheduled for completion in September 1992.

MAINTENANCE PROGRAM

Our request for Fiscal Year 1991 for the Mississippi River and Tributaries Maintenance program is $121 million which is $7.9 million more than allocated in Fiscal Year 1990. Of the $121 million request, $86 million, or 71 percent, will be used for operation and maintenance of main stem levees, channels, and harbors. Another $33 million, or 27 percent, is for operation and maintenance of tributary river basin projects, and the remaining $2 million, or 2 percent, is for our Mapping and Inspection of Completed Works programs.

[The prepared statement of General Williams follows:]

STATUS REPORT
FULL BRIEFING

REPORT OF BRIGADIER GENERAL ARTHUR E. WILLIAMS, DIVISION COMMANDER, LOWER MISSISSIPPI VALLEY DIVISION AND PRESIDENT DESIGNEE, MISSISSIPPI RIVER COMMISSION

OPENING REMARKS

GOOD MORNING, MR. CHAIRMAN AND DISTINGUISHED MEMBERS OF THE SUBCOMMITTEE. I AM BRIGADIER GENERAL ARTHUR E. WILLIAMS, COMMANDER OF THE LOWER MISSISSIPPI VALLEY DIVISION AND PRESIDENT DESIGNEE OF THE MISSISSIPPI RIVER COMMISSION.

WITH YOUR PERMISSION, I WOULD LIKE TO INTRODUCE MEMBERS OF MY STAFF WHO WILL BE ASSISTING ME IN TESTIMONY. THEY ARE MR. FRED BAYLEY, CHIEF OF ENGINEERING; MR. GENE NETTLES, CHIEF OF PROGRAMS; AND HIS PRINCIPAL ASSISTANT, MR. WILLIAM REEVES. IN ADDITION, SEATED BEHIND ME ARE MY CHIEF OF PLANNING, MR. RANDY HANCHEY; AND MY EXECUTIVE ASSISTANT, MR. RODGER HARRIS.

MR. CHAIRMAN, WITH YOUR PERMISSION I WOULD LIKE TO PRESENT AN ORAL SUMMARY OF MY STATUS REPORT AND ASK THAT THE COMPLETE REPORT BE PLACED IN THE RECORD OF THE HEARINGS.

DROUGHT CONDITIONS - MISSISSIPPI AND MISSOURI RIVER BASINS

BEFORE I BEGIN MY PRESENTATION ON THE FY 1991 BUDGET REQUEST, I WOULD LIKE TO BRIEFLY DISCUSS THE IMPACT OF THE CONTINUED DROUGHT AS IT AFFECTS NAVIGATION ON THE MISSISSIPPI RIVER.

RIVER CONDITIONS IN THE VICINITY OF ST. LOUIS, MISSOURI

EXCEPT FOR A BRIEF PERIOD IN SEPTEMBER, THE RIVER STAGE AT ST. LOUIS REMAINED WELL BELOW THE 128 YEAR DAILY MEAN STAGE THROUGHOUT THE 1989 CALENDAR YEAR. NEW RECORD LOW DAILY STAGES WERE SET IN JULY AND NOVEMBER, SURPASSING THE 1988 LOW STAGES. CURRENTLY, THE STAGE AT ST. LOUIS IS ABOUT 7 FEET BELOW THE MEAN STAGE AT THIS TIME IN 1989. DUE TO THE THIRD CONSECUTIVE DROUGHT YEAR IN THE UPPER MISSOURI RIVER BASIN, THE MISSOURI RIVER RESERVOIR SYSTEM STORAGE REACHED A RECORD LOW IN LATE OCTOBER. CURRENT STUDIES IN THE MISSOURI RIVER DIVISION SHOW THAT IT WOULD TAKE MORE THAN SIX YEARS OF NORMAL CONDITIONS TO REFILL THE SYSTEM TO THE TOP OF MULTI-PURPOSE STORAGE. AS A RESULT, THE NAVIGATION RELEASE FROM GAVINS POINT BEGAN ONE WEEK LATE AT A REDUCED RATE OR, 3,000 CUBIC FEET PER SECOND BELOW NORMAL RELEASES. ALSO, THE RELEASES WERE CURTAILED 4 WEEKS EARLY WITH WINTER RELEASE RATES REDUCED TO AN AVERAGE OF 10,500 CUBIC FEET PER SECOND COMPARED TO 12,500 CUBIC FEET PER SECOND LAST WINTER AND NORMAL WINTER RELEASES OF 16,000 CUBIC FEET PER SECOND.

THE CONTINUED DROUGHT REQUIRED A CONSIDERABLE INCREASE IN DREDGING TO ATTEMPT TO MAINTAIN THE NINE FOOT NAVIGATION CHANNEL BETWEEN ST. LOUIS AND CAIRO. DURING FY 1988 WE HAD THREE DREDGES WORKING A TOTAL OF 353 DAYS AND DREDGED ABOUT 8 MILLION CUBIC YARDS OF MATERIAL. IN FY 1989 WE HAD FIVE DREDGES WORKING A TOTAL OF 659 DAYS AND DREDGED ABOUT 24.5 MILLION CUBIC YARDS. FY 1990 APPEARS TO PRESENT A CONTINUED EXTENSIVE DREDGING REQUIREMENT. THIS FISCAL YEAR AGAIN WE WERE WORKING FIVE DREDGES AND HAD JUST PLACED A SIXTH ON LOCATION WHEN SEVERE COLD WEATHER IN DECEMBER FORCED US TO LAY UP ALL THE DREDGES FOR 18 DAYS. IN JANUARY WE RESUMED OPERATION OF FIVE DREDGES; HOWEVER, WITH IMPROVED RIVER CONDITIONS WE NOW HAVE ONLY THREE WORKING.

WITH THE RECORD NEW LOW RIVER STAGES, WE ENCOUNTERED MORE ROCK FORMATIONS WHICH WERE OBSTRUCTIONS TO NAVIGATION. IN OCTOBER 1988, WE AWARDED A $13 MILLION CONTRACT TO REMOVE ABOUT 163,000 CUBIC YARDS OF ROCK IN THE REACH FROM MILE 80 TO MILE 30. AS WORK PROCEEDED AND RIVER STAGES CONTINUED TO FALL, WE IDENTIFIED AN ADDITIONAL 31,000 CUBIC YARDS OF ROCK WHICH HAS TO BE REMOVED. THIS WILL BRING THE TOTAL ROCK REMOVAL TO 194,000 CUBIC YARDS AT A COST OF ABOUT $20 MILLION. CONTRACT COMPLETION IS EXPECTED TO BE IN THE FOURTH QUARTER OF FY 1990.

RIVER CONDITIONS NEAR LOCKS AND DAM 26

THE NEAR RECORD LOW RIVER STAGES AND THE LIMITED LOCKING CAPACITY AT LOCKS AND DAM NO. 26 NEAR ALTON, ILLINOIS, PRODUCED A BACKLOG IN EXCESS OF 1000 BARGES IN NOVEMBER 1989. TRAFFIC WAS HIGH BECAUSE GRAIN SHIPMENTS WERE TRYING TO BEAT THE FROZEN RIVER CONDITIONS EXPECTED DURING THE WINTER MONTHS.

IN ADDITION, THE STRUCTURE WAS NOT OPERATING AT PEAK EFFICIENCY DUE TO THE AGE OF THE STRUCTURE, RECENT BARGE ACCIDENTS WHICH DAMAGED THE LOCK GATES, AND VERY HIGH HEAD DIFFERENTIAL. ALL OF THESE ITEMS TOGETHER WORKED TO CREATE A MAJOR TRAFFIC JAM.

MELVIN PRICE LOCKS AND DAM

WE ACCELERATED A PORTION OF THE THIRD STAGE COFFERDAM CONTRACT ON THE MELVIN PRICE LOCKS AND DAM IN ORDER TO TRY TO RAISE THE POOL AT THE NEW DAM SITE ABOUT FIVE TO SEVEN DAYS EARLY. IF THE POOL COULD BE RAISED EARLY IT WOULD ALLOW THE OLD LOCKS TO BE TAKEN OUT OF OPERATION AND GREATLY DECREASE THE TIME REQUIRED FOR A TOW TO CLEAR THE AREA. LOCKAGES THROUGH THE NEW LOCK WOULD REQUIRE APPROXIMATELY ONE-THIRD THE TIME AS AT THE OLD SITE. HOWEVER, AS THE CONTRACTOR WAS ACCELERATING HIS EFFORTS, SEVERE COLD WEATHER AND STRONG WINDS CAUSED HIM TO SHUT DOWN WITH NO GAIN IN LOCKAGES.

RIVER ICE

THE SEVERE COLD WEATHER PRESENTED US WITH ANOTHER CHALLENGE IN THE FORM OF ICE. IN ADDITION TO CAUSING US TO LAY UP OUR DREDGES, IT ALSO TOTALLY SHUT DOWN NAVIGATION AT THE CONFLUENCE OF THE MISSOURI AND MISSISSIPPI RIVERS AS WELL AS OTHER RIVER REACHES. THE COAST GUARD SUBSEQUENTLY CLOSED THE RIVER TO NAVIGATION FROM ALTON, ILLINOIS TO CAIRO, ILLINOIS BECAUSE OF LOW WATER AND LOSS OF CHANNEL MARKERS TORN OUT BY THE ICE. THE ICE ALSO CAUSED US TO RETHINK THE RAISING OF FULL POOL BEHIND MELVIN PRICE DAM SINCE IT MIGHT HAVE CAUSED PROBLEMS IN FLUSHING ICE THROUGH THE EXISTING LOCKS AND DAM 26 DUE TO THE LACK OF HEAD DIFFERENTIAL. MORE FAVORABLE WEATHER SINCE JANUARY 1, 1990 HAS ALLOWED NEAR NORMAL TRAFFIC MOVEMENT AT LOCKS AND DAM 26.

PROGRAM SUMMARY

MOVING NOW TO MY BUDGET REQUEST, MR. CHAIRMAN, AS YOU KNOW MY TOTAL PROGRAM CONSISTS OF TWO PARTS, THE LOWER MISSISSIPPI VALLEY DIVISION AND THE MISSISSIPPI RIVER COMMISSION. I WILL COVER EACH OF THESE TWO PROGRAMS IN SOME DETAIL, BUT FIRST I WOULD LIKE TO BRIEFLY COVER MY TOTAL PROGRAM.

OUR FISCAL YEAR 1991 TOTAL PROGRAM REQUIREMENTS BEFORE ANY ASSIGNMENT OF SAVINGS AND SLIPPAGE IS $727.1 MILLION. THIS COMPARES TO $778.6 MILLION ALLOCATED FOR FISCAL YEAR 1990. THE CONSTRUCTION PROGRAM ACCOUNTS FOR $436.3 MILLION OR ABOUT 60 CENTS OF EACH DOLLAR; OPERATIONS AND MAINTENANCE OF EXISTING PROJECTS ACCOUNT FOR $276.1 MILLION OR ABOUT 38 CENTS OF EACH DOLLAR; GENERAL INVESTIGATIONS FOR POTENTIAL PROJECTS ACCOUNT FOR $9 MILLION OR A LITTLE OVER 1 CENT OF EACH DOLLAR AND $5.8 MILLION FOR THE GENERAL REGULATORY FUNCTIONS ACCOUNT WHICH IS SLIGHTLY LESS THAN 1 CENT OF EACH DOLLAR.

LOWER MISSISSIPPI VALLEY DIVISION PROGRAM

NOW I WILL REPORT IN MORE DETAIL ON THE PROGRAM THAT COMES UNDER MY JURISDICTION AS COMMANDER, LOWER MISSISSIPPI VALLEY DIVISION. THE LOWER MISSISSIPPI VALLEY DIVISION HAS CIVIL WORKS RESPONSIBILITY IN A PORTION OF SEVEN STATES BORDERING THE MISSISSIPPI RIVER, GENERALLY FROM ST. LOUIS IN THE NORTH TO THE GULF OF MEXICO IN THE SOUTH. WE HAVE DISTRICT OFFICES LOCATED AT ST. LOUIS, MEMPHIS, VICKSBURG, AND NEW ORLEANS.

GENERAL INVESTIGATIONS

OUR REQUEST OF $6,322,000 IN FY 1991 UNDER THE GENERAL INVESTIGATIONS PROGRAM IS APPROXIMATELY $757,000 LESS THAN WE WERE ALLOCATED IN FY 1990. THESE FUNDS PROVIDE FOR COMPLETION OF ONE RECONNAISSANCE PHASE, INITIATION OF FIVE FEASIBILITY STUDIES AND CONTINUATION OF NINE FEASIBILITY STUDIES. WE WILL CONTINUE FIVE AND COMPLETE ONE PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES FOR FLOOD CONTROL PROJECTS.

FEASIBILITY PHASE STUDIES

MERMENTAU RIVER, GIWW TO THE GULF OF MEXICO, LOUISIANA

OUR BUDGET REQUEST INCLUDES FUNDS FOR INITIATION OF THE FEASIBILITY PHASE OF THE MERMENTAU RIVER, GIWW TO THE GULF OF MEXICO STUDY. THIS STUDY, LOCATED IN SOUTHWESTERN LOUISIANA, WILL CONSIDER PROVIDING A MORE DIRECT ROUTE TO THE GULF FROM PORTS IN THE JENNINGS, LOUISIANA AREA.

CANEY CREEK, MISSISSIPPI

THE CANEY CREEK, MISSISSIPPI STUDY AREA IS LOCATED ALONG CANEY CREEK WITHIN THE SOUTHWEST CORPORATE LIMITS OF JACKSON, MISSISSIPPI. THE STUDY WILL INVESTIGATE MEANS OF REDUCING URBAN FLOOD DAMAGES TO THE APPROXIMATELY 300 TO 400 HOMES AND SEVERAL COMMERCIAL ESTABLISHMENTS LOCATED IN THE 100-YEAR FLOOD PLAIN OF THE CREEK. LOSS OF VALUABLE URBAN LANDS ALONG THE CREEK DUE TO BANK CAVING WILL ALSO BE INVESTIGATED. THE RECONNAISSANCE PHASE OF THE STUDY WILL COMPLETE IN MAY 1991 AND THE FUNDS REQUESTED FOR FY 1991 WILL BE USED TO INITIATE THE FEASIBILITY STUDIES.

DARDENE CREEK, MISSOURI

INITIATION OF THE RECONNAISSANCE PHASE OF THE DARDENE CREEK STUDY IS SCHEDULED FOR APRIL 1990. THE STUDY AREA IS LOCATED IN A RAPIDLY URBANIZING AREA IN THE CENTRAL PART OF ST. CHARLES COUNTY, MISSOURI. THIS STUDY WILL ADDRESS FLOODING, EROSION, WATER QUALITY CONTROL, OUTDOOR RECREATION AND GENERAL ENVIRONMENTAL DEGRADATION DUE TO THE CONTINUING URBANIZATION. THE STUDY AREA ALSO INCLUDES WELDON SPRINGS, AN AREA OF LARGE CONCENTRATION OF RADIOACTIVE WASTE STORAGE. THIS SITE MAY BE CONTAMINATING SURFACE AND GROUND WATER AND MAY COMPLICATE THE STUDY EFFORT. THE RADIOACTIVE WASTE PART OF THE STUDY EFFORT WILL BE COORDINATED WITH THE DEPARTMENT OF ENERGY. FEASIBILITY STUDIES WILL BE INITIATED WITH THE FUNDS REQUESTED FOR FY 1991.

HOT SPRINGS, GARLAND COUNTY, ARKANSAS

THE RECONNAISSANCE PHASE OF THE HOT SPRINGS, GARLAND COUNTY, ARKANSAS STUDY IS SCHEDULED FOR COMPLETION IN AUGUST 1990. THE STUDY AREA IS LOCATED IN THE CENTRAL BUSINESS DISTRICT OF HOT SPRINGS AND WILL ADDRESS FLOODING ALONG HOT SPRINGS CREEK. THE FUNDS REQUESTED FOR FY 1991 WILL BE USED TO CONTINUE THE FEASIBILITY STUDY INITIATED IN FY 1990.

LOUISIANA COASTAL AREA STUDIES

LOSS OF VALUABLE MARSH LAND IN THE LOUISIANA COASTAL AREA CONTINUES TO BE OF MAJOR CONCERN. THE BUDGET REQUEST INCLUDES FUNDS TO CONTINUE A NUMBER OF FEASIBILITY STUDIES WHICH ADDRESS THESE CONCERNS. WE ARE WORKING CLOSELY WITH OTHER FEDERAL, STATE AND LOCAL AGENCIES AS WELL AS PRIVATE INTERESTS TO ASSURE THAT ALL CONCERNS ARE CONSIDERED AND THAT THE MOST FEASIBLE SOLUTIONS TO THE MANY PROBLEMS ARE PROPOSED. WE HAVE COMPLETED THE RECONNAISSANCE PHASE OF THIS COMPREHENSIVE STUDY AND FUNDS REQUESTED IN FY 1991 WILL CONTINUE THE FEASIBILITY STUDY INITIATED IN FY 1990.

ALEXANDER-PULASKI COUNTIES, ILLINOIS

AN INITIAL EVALUATION REPORT FOR THE CACHE RIVER BASIN IN ALEXANDER AND PULASKI COUNTIES IN SOUTHERN ILLINOIS WAS COMPLETED IN MARCH 1984. THE REPORT CONCLUDED THAT THERE WAS POTENTIAL FOR IDENTIFICATION OF ECONOMICALLY FEASIBLE MEASURES TO REDUCE FLOODING AND PRESERVE THE ENVIRONMENTAL QUALITY OF THE AREA AND RECOMMENDED FEASIBILITY STUDIES BE UNDERTAKEN. IN MAY 1988, THE ILLINOIS DEPARTMENT OF CONSERVATION ASKED THAT THE STUDY BE DEFERRED FOR TWO YEARS BECAUSE OF OTHER FINANCIAL PRIORITIES. THE DEPARTMENT OF CONSERVATION HAS RECENTLY EXPRESSED RENEWED INTEREST IN INITIATING FEASIBILITY STUDIES. THEY HAVE INDICATED THEY HAVE RECEIVED SUPPORT FROM SEVERAL ORGANIZATIONS TO PARTICIPATE IN POSSIBLE DEVELOPMENT OF A NATIONAL WILDLIFE REFUGE IN THE CYPRESS CREEK AREA. WE ARE AWAITING FINALIZATION OF A FEASIBILITY COST SHARING AGREEMENT PRIOR TO INITIATING THE FEASIBILITY PHASE OF THE STUDY. THE FUNDS REQUESTED FOR FY 1991 WILL BE USED TO CONTINUE THE FEASIBILITY STUDY.

PLATTIN CREEK, MISSOURI

THE CONGRESS ADDED FUNDS IN FY 1990 FOR THE INITIATION OF RECONNAISSANCE STUDIES FOR PLATTIN CREEK, MISSOURI. THIS STUDY WILL INVESTIGATE COMMERCIAL AND RESIDENTIAL FLOODING PROBLEMS IN PORTIONS OF CRYSTAL CITY AND FESTUS, MISSOURI. THE FUNDS REQUESTED FOR FY 1991 WILL BE USED TO INITIATE THE FEASIBILITY PHASE STUDY.

JACKSON METROPOLITAN AREA, MISSISSIPPI

RECONNAISSANCE PHASE STUDIES FOR THE JACKSON, MISSISSIPPI METROPOLITAN AREA ARE SCHEDULED FOR COMPLETION IN DECEMBER 1990. THE FUNDS REQUESTED FOR FY 1991 WILL BE USED TO INITIATE THE FEASIBILITY STUDIES WHICH ARE SCHEDULED FOR COMPLETION IN DECEMBER 1993. THE MOST LIKELY SOLUTION IS A COMPREHENSIVE LEVEE SYSTEM TO INCORPORATE THE EXISTING JACKSON-EAST JACKSON LEVEES.

PRECONSTRUCTION ENGINEERING AND DESIGN

COMITE RIVER, LOUISIANA

THE FEASIBILITY STUDY OF THE COMITE RIVER IN LOUISIANA IS BEING CONDUCTED UNDER THE AMITE RIVER AND TRIBUTARIES STUDY. EVALUATION OF TWO MAJOR COMITE RIVER ALTERNATIVE PLANS, THE COMITE AND AMITE RIVERS' CHANNEL MODIFICATION PLAN AND THE COMITE RIVER DIVERSION PLAN, HAS RECENTLY ADVANCED TO THE POINT WHERE THE COMITE RIVER DIVERSION PLAN HAS BEEN SELECTED AS THE OPTIMUM PLAN. THE ESTIMATED COST OF THIS PLAN IS APPROXIMATELY $60 MILLION. THE FINAL FEASIBILITY REPORT AND ENVIRONMENTAL IMPACT STATEMENT IS SCHEDULED TO BE COMPLETED IN JULY 1990. FY 1991 FUNDS WILL BE USED TO INITIATE PRECONSTRUCTION ENGINEERING AND DESIGN EFFORTS.

UPPER BAYOU TECHE, LOUISIANA

SUBJECT TO A FEASIBLE PROJECT REPORT THE FUNDS PROVIDED IN FY 1990 WILL BE USED TO INITIATE PRECONSTRUCTION ENGINEERING AND DESIGN OF THE UPPER BAYOU TECHE PROJECT IN LOUISIANA. ALTERNATIVES UNDER CONSIDERATION INCLUDE CHANNEL ENLARGEMENT IN BAYOU TECHE, CONSTRUCTION OF A CONVEYANCE CHANNEL, AND MODIFICATION OF OPERATING PROCEDURES. THE FUNDS REQUESTED FOR FY 1991 WILL BE USED TO CONTINUE PRECONSTRUCTION ENGINEERING AND DESIGN EFFORTS.

COLDWATER CREEK, MISSOURI

THE FEASIBILITY REPORT FOR THE COLDWATER CREEK, MISSOURI, PROJECT RECOMMENDS FLOOD PROTECTION FOR THE HIGHLY URBANIZED AREA OF NORTH ST. LOUIS COUNTY BY CONSTRUCTION OF 10 MILES OF CHANNEL WIDENING AND ASSOCIATED WORKS. THE PROJECT AREA INCLUDES TWO RADIOACTIVE MATERIALS STORAGE SITES ADJACENT TO THE CREEK IMMEDIATELY DOWNSTREAM OF THE ST. LOUIS INTERNATIONAL AIRPORT, AND RADIOACTIVE MATERIALS HAVE BEEN FOUND IN THE SEDIMENTS OF COLDWATER CREEK DOWNSTREAM OF THE AIRPORT. WE ARE COORDINATING WITH THE DEPARTMENT OF ENERGY TO ASSURE THAT THIS PART OF OUR PROJECT AND THEIR PLANS FOR CLEANUP OF MATERIAL ARE MUTUALLY COMPATIBLE. THE FUNDS REQUESTED FOR FY 1991 WILL PROVIDE FOR CONTINUATION OF DESIGN WORK ON THE OVERALL PROJECT. PRECONSTRUCTION ENGINEERING AND DESIGN IS SCHEDULED FOR COMPLETION IN SEPTEMBER 1992.

TANGIPHAHOA, TCHEFUNCTE AND TICKFAW RIVERS, LOUISIANA

THE TANGIPHAHOA, TCHEFUNCTE AND TICKFAW RIVERS STUDY IN LOUISIANA WAS AUTHORIZED FOR PRECONSTRUCTION ENGINEERING AND DESIGN IN THE WATER RESOURCES DEVELOPMENT ACT OF 1986 PRIOR TO ANY STUDIES IN THE AREA. THEREFORE, BEFORE BEGINNING PRECONSTRUCTION ENGINEERING AND DESIGN, WE ARE CONDUCTING A RECONNAISSANCE PHASE STUDY AND WILL INITIATE THE FEASIBILITY STUDY WITH THE FUNDS REQUESTED FOR FY 1991. THESE STUDIES ARE NECESSARY TO DEFINE THE FLOOD PROBLEMS, POSSIBLE SOLUTIONS AND THEIR POTENTIAL ECONOMIC FEASIBILITY AND ENVIRONMENTAL ACCEPTABILITY. THE FEASIBILITY STUDY IS SCHEDULED FOR COMPLETION IN AUGUST 1995.

RIVER DES PERES, MISSOURI

THE RIVER DES PERES, MISSOURI PROJECT IS LOCATED IN THE SOUTH AND WEST PORTION OF THE CITY OF ST. LOUIS IN ST. LOUIS COUNTY. THE RECOMMENDED PLAN CONTAINED IN THE FEASIBILITY REPORT WHICH IS NOW UNDER REVIEW, WILL PROVIDE FOR PROTECTION TO A HIGHLY URBANIZED AREA AND CONSISTS OF CHANNEL MODIFICATIONS, FLOOD PROOFING, AND ASSOCIATED WORKS. THE FUNDS REQUESTED FOR FY 1991 WILL BE USED TO COMPLETE PRECONSTRUCTION ENGINEERING AND DESIGN IN SEPTEMBER 1991.

CONSTRUCTION, GENERAL PROGRAM

TURNING NOW TO OUR CONSTRUCTION PROGRAM. OUR BUDGET REQUEST OF $210.1 MILLION INCLUDES INLAND WATERWAY TRUST FUNDS OF $37.5 MILLION. THIS IS A DECREASE OF $79.3 MILLION OVER OUR ALLOCATION FOR FY 1990. THESE FUNDS WILL PROVIDE FOR CONTINUATION OF 15 PROJECTS. THERE ARE NO NEW CONSTRUCTION STARTS.

MELVIN PRICE LOCK AND DAM, ILLINOIS AND MISSOURI

CONSTRUCTION IS PROGRESSING SATISFACTORILY ON THE MELVIN PRICE LOCK AND DAM PROJECT. THE FIRST COMMERCIAL TOW WAS LOCKED THROUGH ON 10 OCTOBER 1989. THE THIRD STAGE COFFERDAM CONTRACTOR COMPLETED THE TEMPORARY CLOSURE TO STOP FLOW THROUGH THE COFFERDAM AREA ON 4 NOVEMBER 1989. ALL RIVER FLOW IS NOW THROUGH THE DAM GATES. AS I INDICATED EARLIER, A BACKLOG OF TOWS AT LOCKS AND DAM 26 HAD DEVELOPED. THIS BACKLOG WAS ESSENTIALLY CLEARED BY 19 DECEMBER 1989. WE CLOSED THE RIVER TO TRAFFIC FOR 5 DAYS BEGINNING 5 FEBRUARY 1989 SO THAT THE UPPER SILL COULD BE RAISED TO PERMIT OPERATION UNDER ALL FLOW CONDITIONS. THE CONTRACT FOR REMOVAL OF THE EXISTING STRUCTURE AT LOCKS AND DAM 26, AND THE BURLINGTON NORTHERN RAILROAD BRIDGE WAS AWARDED ON 31 OCTOBER 1989 AND IS SCHEDULED FOR COMPLETION IN JUNE 1991.

MELVIN PRICE - SECOND LOCK, ILLINOIS AND MISSOURI

THE CONTRACT FOR THE SECOND LOCK AT MELVIN PRICE LOCK AND DAM WAS AWARDED ON OCTOBER 11, 1989. COMPLETION OF THE SECOND LOCK IS SCHEDULED FOR OCTOBER 1992.

RED RIVER WATERWAY - MISSISSIPPI RIVER TO SHREVEPORT, LOUISIANA

IN THE RED RIVER WATERWAY - MISSISSIPPI RIVER TO SHREVEPORT, LOUISIANA PROJECT, WE PRESENTLY HAVE 15 CHANNEL IMPROVEMENT CONTRACTS UNDERWAY WITH A TOTAL VALUE OF $75 MILLION. WORK IS PROGRESSING SATISFACTORILY ON LOCK AND DAM 3. THIS LOCK AND DAM WILL BE COMPLETE IN OCTOBER 1991.

CONGRESS PROVIDED AN ADDITIONAL $4,800,000 IN FY 1990 TO INITIATE CONSTRUCTION OF LOCKS AND DAMS 4 AND 5, THREE BANK STABILIZATION ITEMS IN POOL 1 AND INITIATION OF MITIGATION MEASURES. INITIATION OF CONSTRUCTION FOR LOCKS AND DAMS 4 AND 5 WILL NOT MEET THE APRIL 1990 SCHEDULE DIRECTED BY CONGRESS DUE TO DELAYS IN REQUESTING RIGHTS-OF-WAY; HOWEVER, CONTRACT AWARDS FOR BOTH STRUCTURES ARE ANTICIPATED BY JULY 1990. THE FY 1991 BUDGET REQUEST OF $39,147,000 DOES NOT INCLUDE FUNDS TO CONTINUE CONSTRUCTION OF LOCKS AND DAMS 4 AND 5.

MISSISSIPPI RIVER SHIP CHANNEL, GULF TO BATON ROUGE, LOUISIANA

ON THE MISSISSIPPI RIVER SHIP CHANNEL, GULF TO BATON ROUGE, LOUISIANA PROJECT, CONSTRUCTION OF THE 45-FOOT CHANNEL FROM THE GULF TO MILE 181 NEAR DONALDSONVILLE, LOUISIANA, WAS COMPLETED IN 1988.

LOCAL COOPERATION, FROM THE LOUISIANA STATE DEPARTMENT OF COMMERCE AND THE DEPARTMENT OF ECONOMIC DEVELOPMENT, HAS BEEN EXCELLENT. THE DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT HAS NOW TAKEN OVER THE LOCAL RESPONSIBILITY FOR THIS PROJECT. THE FY 1991 BUDGET REQUEST INCLUDES FUNDS TO CONTINUE THE FINAL PLAN FOR MITIGATION OF SALTWATER INTRUSION, WHICH WILL COMPLETE ALL WORK FOR PHASE I OF THE PROJECT. WE ESTIMATE THAT ABOUT $700 MILLION IN AVERAGE ANNUAL BENEFITS ARE BEING GENERATED BY THE COMPLETION OF THAT REACH OF THE 45-FOOT CHANNEL FROM THE GULF TO MILE 181.

THE STATE OF LOUISIANA HAS EXPRESSED A DESIRE TO EXTEND THE 45-FOOT PROJECT TO BATON ROUGE, LOUISIANA. DESIGN STUDIES HAVE BEEN INITIATED AND OUR BUDGET REQUEST INCLUDES FUNDS TO COMPLETE SUPPLEMENTAL GENERAL DESIGN MEMORANDUM STUDIES ON THIS PHASE II REACH OF THE PROJECT.

GRAND ISLE AND VICINITY HURRICANE PROTECTION, LOUISIANA

THE SAND DUNE ON THE GRAND ISLE AND VICINITY HURRICANE PROTECTION PROJECT IN LOUISIANA WAS FURTHER WEAKENED BY HURRICANES CHANTAL AND JERRY THIS PAST YEAR. WE WILL BEGIN DUNE REPAIR AND STRUCTURAL REINFORCEMENT IN MARCH 1990. SEVERAL ISSUES HAVE DELAYED THIS WORK INCLUDING THE DISCOVERY THAT THE PLANNED BORROW PIT IS A HABITAT FOR AN ENDANGERED BIRD SPECIES, THE PIPING PLOVER. WE HAVE LOCATED ANOTHER SOURCE OF SAND ABOUT A MILE AND A HALF OFFSHORE ON THE EASTERN END OF THE ISLAND. THIS CHANGE IN THE SOURCE OF SAND HAS INCREASED THE REPAIR COST FROM $12 MILLION TO $15 MILLION. THE STATE NOW HAS $4.75 MILLION OF THEIR TOTAL SHARE OF $5.8 MILLION AND HAS INDICATED THE REMAINDER WILL BE AVAILABLE IN JULY 1990.

LAKE PONTCHARTRAIN, LOUISIANA AND VICINITY HURRICANE PROTECTION

ON THE LAKE PONTCHARTRAIN AND VICINITY HURRICANE PROTECTION PROJECT, WE WILL CONTINUE FLOODWALL AND LEVEE CONSTRUCTION WORK IN ORLEANS, JEFFERSON AND ST. BERNARD PARISH DURING FY 1990.

IN ADDITION WE WILL FINALIZE DESIGN AND AWARD THE FIRST ITEM OF CONSTRUCTION IN ST. CHARLES PARISH IN LATE FY 1990.

THE FY 1991 FUNDS WILL BE USED, IN PART, TO INITIATE AND COMPLETE TWO FLOODWALL CAPPING CONTRACTS IN THE CHALMETTE AREA, COMPLETE THE SOUTH POINT TO GIWW LEVEE, AND INITIATE CONSTRUCTION ON THE ORLEANS OUTFALL CANAL IN THE NEW ORLEANS EAST UNIT.

THE REMAINING FY 1991 FUNDS WILL BE USED TO CONTINUE CONSTRUCTION ON THE JEFFERSON PARISH LAKEFRONT LEVEE AND TO COMPLETE THE RETURN LEVEE FLOODWALL ALONG THE JEFFERSON-ST. CHARLES PARISH LINE.

CONSTRUCTION OF THE ST. CHARLES PARISH LEVEE NORTH OF AIRLINE HIGHWAY WILL ALSO BE CONTINUED IN FY 1991.

LAROSE TO GOLDEN MEADOW, LOUISIANA

THE LAROSE TO GOLDEN MEADOW, LOUISIANA, PROJECT WILL PROVIDE HURRICANE PROTECTION TO THE INHABITED LAND ALONG BAYOU LAFOURCHE. WITH FUNDS RECEIVED FOR FY 1990, WE WILL COMPLETE ONE FIRST LIFT LEVEE CONTRACT, INITIATE CONSTRUCTION ON ONE SECOND LIFT LEVEE CONTRACT, AND COMPLETE CONSTRUCTION ON TWO SECOND LIFT CONTRACTS. WE WILL ALSO INITIATE CONSTRUCTION ON THE MITIGATION FEATURE.

WITH FUNDS REQUESTED FOR FY 1991 WE WILL COMPLETE SECOND LIFT CONSTRUCTION ON SECTION F AND INITIATE CONSTRUCTION ON THE FIRST LIFT OF SECTION D-NORTH AFTER WHICH WE WILL HAVE COMPLETED ALL FIRST-LIFT LEVEE ITEMS. THIS IS A MILESTONE SINCE INTERIM PROTECTION WILL BE AVAILABLE TO THE ENTIRE AREA WHEN THIS ITEM IS COMPLETED IN SEPTEMBER 1992.

NEW ORLEANS TO VENICE, LOUISIANA HURRICANE PROTECTION

THE NEW ORLEANS TO VENICE, LOUISIANA HURRICANE PROTECTION PROJECT WILL PROVIDE HURRICANE PROTECTION ALONG BOTH BANKS OF THE MISSISSIPPI RIVER SOUTH OF NEW ORLEANS.

OUR FIRST USE OF GEOTEXTILE FABRICS WAS ON THIS PROJECT IN OCTOBER 1988. THE FABRIC GIVES GREATER STRENGTH TO THE LEVEE FOUNDATION AND REDUCES THE LEVEE CROSS-SECTION AND, THEREBY, THE IMPACT ON WETLANDS. THE USE OF THIS FABRIC WILL SAVE THE PROJECT APPROXIMATELY $69 MILLION AND PREVENT THE LOSS OF LARGE AREAS OF MARSH.

BELOW EMPIRE, LOUISIANA, PROJECT CONSTRUCTION IS FAR ENOUGH ALONG THAT THE FEDERAL EMERGENCY MANAGEMENT AGENCY HAS RELIEVED PLAQUEMINES PARISH OF THE REQUIREMENT THAT THE 1ST FLOOR LEVEL OF NEW CONSTRUCTION BE BUILT TO AN ELEVATION OF PLUS 14 FEET NATIONAL GEODETIC VERTICAL DATUM.

DURING FY 1991, WE WILL COMPLETE TWO LEVEE ITEMS IN REACH B-1; IN REACH A WE WILL COMPLETE ONE LEVEE ITEM, CONTINUE ENLARGEMENT OF TWO, AND AWARD ONE NEW LEVEE ITEM; AND, ON THE WEST BANK RIVER LEVEES, WE WILL COMPLETE ONE LEVEE ITEM, CONTINUE THREE, AND INITIATE ONE NEW LEVEE ITEM. THE PROJECT SHOULD BE ABOUT 70 PERCENT COMPLETE BY THE END OF FY 1991.

WESTWEGO TO HARVEY CANAL HURRICANE PROTECTION, LOUISIANA

THE WESTWEGO TO HARVEY CANAL PROJECT IN THE NEW ORLEANS AREA WILL PROVIDE HURRICANE PROTECTION TO THE URBAN AREAS BETWEEN WESTWEGO AND THE HARVEY CANAL BY IMPROVING EXISTING LEVEES OR CONSTRUCTING NEW LEVEES AND FLOODWALLS.

THE DRAFT LOCAL COOPERATION AGREEMENT WAS SIGNED ON DECEMBER 8, 1989 BY THE WEST JEFFERSON LEVEE DISTRICT, THE LOCAL SPONSOR.

WITH FUNDS RECEIVED IN FY 1990, WE WILL INITIATE CONSTRUCTION ON THE FIRST LEVEE CONTRACT FOR THE PROJECT ALONG LOUISIANA HIGHWAY 45 IN JULY 1990.

FY 1991 FUNDS WILL BE USED TO COMPLETE THE FIRST LEVEE CONTRACT, COMPLETE MITIGATION, AND INITIATE THREE FLOODWALLS AND TWO ADDITIONAL LEVEE ITEMS.

OPERATIONS AND MAINTENANCE, GENERAL

OUR REQUEST FOR OPERATIONS AND MAINTENANCE, GENERAL FUNDS IN FY 1991 AMOUNTS TO $155.1 MILLION WHICH IS $9.4 MILLION MORE THAN ALLOCATED IN FY 1990. OUR REQUEST FOR FUNDS IS ADEQUATE TO CONTINUE ROUTINE OPERATION AND MAINTENANCE ACTIVITIES AT OUR COMPLETED PROJECTS.

THE OPERATION AND MAINTENANCE PROGRAM CONTINUES TO FUND THE MISSISSIPPI RIVER FROM BATON ROUGE TO THE GULF PROJECT BANK RESTORATION WORK THAT WAS TRANSFERRED FROM THE CONSTRUCTION PROGRAM IN FY 1989. THIS BANK RESTORATION WORK IS DESIGNED TO PREVENT FURTHER BANKLINE EROSION IN SOUTHWEST PASS IN THE MISSISSIPPI RIVER BELOW VENICE AND CONFINE FLOW TO THE NAVIGATION CHANNEL, THEREBY REDUCING THE COST OF ANNUAL MAINTENANCE DREDGING. THIS WORK IS PROCEEDING SATISFACTORILY.

MISSISSIPPI RIVER COMMISSION PROGRAM

NOW I WILL SWITCH HATS AND DISCUSS THE MISSISSIPPI RIVER AND TRIBUTARIES PROJECT ACCOUNT WHICH IS THE OTHER PART OF MY TOTAL PROGRAM. THE MR&T PROJECT IS IN THE ALLUVIAL VALLEY OF THE MISSISSIPPI RIVER FROM CAPE GIRARDEAU, MISSOURI TO THE GULF OF MEXICO. THIS PROJECT COMES UNDER MY JURISDICTION AS PRESIDENT DESIGNEE OF THE MISSISSIPPI RIVER COMMISSION. OUR FISCAL YEAR 1991 MR&T BUDGET REQUEST IS FOR $349.9 MILLION, WHICH IS $18.6 MILLION MORE THAN OUR ALLOCATION FOR FISCAL YEAR 1990.

GENERAL INVESTIGATIONS PROGRAM

FUNDS IN THE AMOUNT OF $2.7 MILLION REQUESTED UNDER THE GENERAL INVESTIGATION CATEGORY WILL PROVIDE FOR EIGHT ACTIVITIES. WE WILL CONTINUE TWO FLOOD DAMAGE PREVENTION FEASIBILITY STUDIES AND ONE FISH AND WILDLIFE STUDY; INITIATE ONE NEW FLOOD DAMAGE PREVENTION PRECONSTRUCTION ENGINEERING AND DESIGN PROJECT AND CONTINUE THREE. IN ADDITION, WE WILL CONTINUE OUR COLLECTION AND STUDY OF BASIC DATA EFFORT.

BIRDS POINT, NEW MADRID FLOODWAY, MISSOURI

THE BIRDS POINT, NEW MADRID, MISSOURI STUDY WILL ADDRESS THE ALTERNATIVES TO THE OPERATION OF THE 203 SQUARE MILE FLOODWAY IN THE INTEREST OF FLOOD CONTROL, NAVIGATION, AND ALLIED PURPOSES. THE FUNDS REQUESTED WILL BE USED TO CONTINUE THE FEASIBILITY PHASE OF THE STUDY WHICH IS SCHEDULED FOR COMPLETION IN SEPTEMBER 1992.

ST. FRANCIS RIVER, FISH AND WILDLIFE, ARKANSAS AND MISSOURI

FUNDS WERE ADDED BY THE CONGRESS IN BOTH THE FY 1989 AND THE FY 1990 BUDGET REQUESTS TO CONTINUE THE ST. FRANCIS RIVER, FISH AND WILDLIFE, ARKANSAS AND MISSOURI STUDY. THE STUDY AREA IS LOCATED IN SOUTHEASTERN MISSOURI AND NORTHEAST ARKANSAS AND, EXCEPT FOR 3 COUNTIES IN THE OZARK HIGHLANDS, LIES WITHIN THE ALLUVIAL VALLEY OF THE MISSISSIPPI RIVER WHICH IS HIGHLY DEVELOPED FOR AGRICULTURAL PURPOSES. FUNDS REQUESTED IN FY 1991 WILL BE USED TO DETERMINE THE NEED AND JUSTIFICATION FOR MEASURES IN THE INTEREST OF FISH AND WILDLIFE CONSERVATION AND RELATED RECREATION USE, AND COMPLETION OF THE RECONNAISSANCE REPORT IN JULY 1991.

SOUTHEAST ARKANSAS, ARKANSAS

CONGRESS ADDED $300,000 IN FY 1990 TO INITIATE RECONNAISSANCE PHASE STUDIES OF SOUTHEAST ARKANSAS. THE PURPOSE OF THIS STUDY IS TO DEVELOP JOINTLY WITH THE SOIL CONSERVATION SERVICE A MULTI-PURPOSE FLOOD CONTROL AND AGRICULTURAL WATER SUPPLY PLAN FOR SIX COUNTIES IN SOUTHEAST ARKANSAS. THE FUNDS REQUESTED FOR FY 1991 WILL PROVIDE FOR INITIATION OF FEASIBILITY STUDIES.

PRECONSTRUCTION ENGINEERING AND DESIGN

FUNDS REQUESTED IN FY 1991 WILL INITIATE ONE NEW PRECONSTRUCTION ENGINEERING AND DESIGN STUDY AND CONTINUE THREE.

EASTERN ARKANSAS REGION, ARKANSAS

FUNDS REQUESTED IN FY 1991 WILL BE USED TO INITIATE PRECONSTRUCTION ENGINEERING AND DESIGN ON THE EASTERN ARKANSAS REGION COMPREHENSIVE STUDY WHICH WAS COST SHARED DURING THE FEASIBILITY PHASE. THE STUDY ADDRESSES FLOODING, GROUNDWATER DEPLETION, AND OTHER WATER RELATED ASPECTS IN A TWENTY FOUR COUNTY AREA IN NORTHEAST ARKANSAS. USE OF GROUNDWATER FOR IRRIGATION OF RICE AND OTHER CROPS IS REDUCING WATER SUPPLIES BY 17 PERCENT PER YEAR. STUDIES HAVE NOT PROGRESSED TO THE POINT OF IDENTIFYING A RECOMMENDED PLAN; HOWEVER, PROJECTS BEING FORMULATED INCLUDE BOTH PUMPED AND GRAVITY FLOW DIVERSIONS, PLUS MULTI-PURPOSE CHANNELS TO REDUCE FLOODING AND TO DISTRIBUTE SURFACE WATER FOR AGRICULTURAL IRRIGATION. PROJECT COSTS ARE EXPECTED TO RANGE FROM $30 TO $120 MILLION. THE STATE OF ARKANSAS, AS REPRESENTED BY THE ARKANSAS SOIL AND WATER CONSERVATION COMMISSION, IS THE COST-SHARING STUDY SPONSOR AND THE WHITE RIVER REGIONAL IRRIGATION WATER DISTRIBUTION DISTRICT IS PROVIDING SUPPORT AT THE LOCAL LEVEL. COMPLETION OF THE STUDY IS SCHEDULED FOR SEPTEMBER 1993.

WHITEMAN'S CREEK, ARKANSAS

THE WHITEMAN'S CREEK, ARKANSAS, PROJECT IS LOCATED IN THE ST. FRANCIS BASIN IN NORTHEASTERN ARKANSAS AND PROVIDES FLOOD CONTROL FOR THE CITY OF JONESBORO AND ADJACENT AREAS. FINDINGS IN THE FEASIBILITY STUDY INDICATE THAT A PLAN TO PROVIDE COMPLETE PROTECTION FROM A 10-YEAR FLOOD EVENT IS ECONOMICALLY FEASIBLE. PROPOSED CHANNEL IMPROVEMENTS CONSIST OF ENLARGEMENT AND VEGETATIVE CLEARING ON AREA STREAMS. THE FUNDS REQUESTED FOR FY 1991 WILL BE USED TO COMPLETE THE GENERAL DESIGN MEMORANDUM WITH PRECONSTRUCTION ENGINEERING AND DESIGN SCHEDULED FOR COMPLETION IN SEPTEMBER 1993.

LOWER WHITE RIVER, BIG CREEK AND TRIBUTARIES, ARKANSAS

THE LOWER WHITE RIVER, BIG CREEK AND TRIBUTARIES PROJECT WAS AUTHORIZED FOR CONSTRUCTION BY THE FLOOD CONTROL ACT OF 1965. IT IS LOCATED IN EASTERN ARKANSAS IN ST. FRANCIS, LEE, AND PHILLIPS COUNTIES. THE RECOMMENDED PLAN WAS PRESENTED TO THE PUBLIC WHICH EXPRESSED A NUMBER OF CONFLICTING VIEWS THAT COULD NOT BE RESOLVED. STUDIES WERE SUSPENDED IN 1976 UNTIL SUCH TIME THAT AN AGREEMENT COULD BE REACHED ON AN ACCEPTABLE PLAN. THE REFORMULATION STUDIES TO DEVELOP A BALANCED PLAN OF IMPROVEMENT WERE INITIATED IN FY 1988. FY 1991 FUNDS WILL BE USED TO COMPLETE THE REFORMULATION STUDIES AND COMPLETE THE ENVIRONMENTAL IMPACT AND FISH AND WILDLIFE STUDIES. PRECONSTRUCTION ENGINEERING AND DESIGN IS SCHEDULED TO BE COMPLETED IN MARCH 1993.

HELENA, ARKANSAS AND VICINITY

THE HELENA, ARKANSAS AND VICINITY PROJECT WAS AUTHORIZED IN THE WATER RESOURCES DEVELOPMENT ACT OF 1986. IT IS AN URBAN FLOOD CONTROL PROJECT LOCATED IN EAST CENTRAL ARKANSAS ON THE WEST BANK OF THE MISSISSIPPI RIVER IN PHILLIPS COUNTY. THE ENTIRE DOWNTOWN BUSINESS DISTRICT OF HELENA IS LOCATED WITHIN THE 100-YEAR FLOOD PLAIN. FUNDS ($500,000) REQUESTED IN FY 1991 WILL BE USED TO CONTINUE STUDIES AND TO COMPLETE THE GENERAL DESIGN MEMORANDUM. PRECONSTRUCTION ENGINEERING AND DESIGN IS SCHEDULED FOR COMPLETION IN MARCH 1992.

MISSISSIPPI RIVER AND TRIBUTARIES - CONSTRUCTION

NEXT, I WILL DISCUSS OUR MISSISSIPPI RIVER AND TRIBUTARIES CONSTRUCTION PROGRAM. OUR REQUEST FOR FY 1991 IS $226.2 MILLION. THESE FUNDS WILL ALLOW US TO CONTINUE TWELVE CONSTRUCTION PROJECTS AND CONTINUE ONE PROJECT UNDER THE DAM SAFETY ASSURANCE PROGRAM.

MISSISSIPPI RIVER LEVEES

UNDER THE MISSISSIPPI RIVER LEVEES PROJECT, WE ARE CONTINUING OUR INTENSIVE EFFORT TO UPGRADE THE LEVEE AND FLOODWALL SYSTEM IN THE NEW ORLEANS METROPOLITAN AREA. FUNDS REQUESTED IN FY 1991 WILL ALLOW US TO INITIATE FOUR NEW CONTRACT ITEMS, INITIATE AND COMPLETE THREE ITEMS, CONTINUE FOUR ITEMS AND COMPLETE EIGHT. INCLUDED ARE FUNDS TO AWARD THE JACKSON TO THALIA PHASE 3 CONTRACT FOR THE LAST ONE-TENTH MILE OF FLOODWALL THROUGH THE METROPOLITAN AREA.

CHANNEL IMPROVEMENT

UNDER THE CHANNEL IMPROVEMENT PROJECT, ABOUT 942 MILES OF THE 1,085 MILES OF AUTHORIZED BANK PROTECTION HAVE BEEN PLACED. WE CONSTRUCTED 18.9 MILES OF REVETMENTS AT 24 LOCATIONS DURING THE 1989 SINKING SEASON AND PLAN TO PLACE 21.5 MILES OF NEW REVETMENTS AT 28 LOCATIONS DURING THE 1990 SINKING SEASON.

ATCHAFALAYA BASIN, LOUISIANA

THE DESIGN OF THE MISSISSIPPI RIVER AND TRIBUTARIES PROJECT CALLS FOR THE ATCHAFALAYA BASIN FLOODWAY TO CARRY ONE-HALF OF PROJECT FLOOD FLOWS TO THE GULF OF MEXICO. THE FLOODWAY CAPACITY IS NOW 1.1 MILLION CUBIC FEET PER SECOND. WITH WORK WE COMPLETE THROUGH FY 1991, THE FLOODWAY CAPACITY WILL BE INCREASED TO 1.4 MILLION CUBIC FEET PER SECOND OR ABOUT 90 PERCENT OF THE DESIGN CAPACITY.

ATCHAFALAYA BASIN FLOODWAY SYSTEM, LOUISIANA

ON THE ATCHAFALAYA BASIN FLOODWAY SYSTEM PROJECT, IN FY 1989 WE BOUGHT OVER 6,000 ACRES OF THE 23,000 ACRES OF PUBLIC ACCESS LANDS TO BE PURCHASED IN FEE TITLE FROM WILLING SELLERS. OUR TOP PRIORITY FOR PUBLIC ACCESS PURCHASE IS THE AREA ON THE EAST SIDE OF THE RIVER ABOVE I-10. DURING FY 1990 AND FY 1991 WE WILL CONTINUE THE PURCHASE OF PUBLIC ACCESS LANDS AND WILL INITIATE ACQUISITION OF EASEMENTS FOR DEVELOPMENTAL CONTROL, ENVIRONMENTAL PROTECTION, AND FLOWAGE. THE WORK WILL INVOLVE LANDS ON BOTH SIDES OF THE RIVER, ABOVE THE LATITUDE OF BUTTE LA ROSE.

MISSISSIPPI DELTA REGION, LOUISIANA

THE MISSISSIPPI DELTA REGION PROJECT AUTHORIZES STRUCTURES TO DIVERT FRESHWATER FROM THE MISSISSIPPI RIVER INTO ADJACENT COASTAL AREAS FOR PURPOSES OF SALINITY CONTROL AND FISH AND WILDLIFE ENHANCEMENT. SALTWATER INTRUSION IS ONE OF THE MAIN FACTORS CONTRIBUTING TO LAND LOSS AND DECREASED PRODUCTIVITY IN LOUISIANA'S COASTAL WETLANDS.

THE FY 1991 BUDGET REQUEST INCLUDES FUNDS FOR THE COMPLETION IN DECEMBER 1990 OF THE CAERNARVON STRUCTURE ON THE EAST BANK OF THE RIVER AND FOR CONTINUATION OF THE MONITORING PROGRAM.

WE WILL ALSO CONTINUE ENGINEERING AND DESIGN AND INITIATE LAND ACQUISITION FOR THE DAVIS POND STRUCTURE ON THE WEST BANK OF THE RIVER. THIS DIVERSION WILL PRESERVE 83,000 ACRES OF WETLANDS. THE GENERAL DESIGN MEMORANDUM IS SCHEDULED FOR COMPLETION IN FY 1990.

YAZOO BASIN, MISSISSIPPI

A REFORMULATION OF THE YAZOO BASIN, MISSISSIPPI, PROJECT WAS INITIATED IN FEBRUARY 1989 TO ADDRESS CONCERNS OF WHETHER THE ECONOMIC AND ENVIRONMENTAL ISSUES FOR WORK REMAINING TO BE CONSTRUCTED HAS BEEN PROPERLY CONSIDERED.

FUNDS AVAILABLE IN FY 1990 FOR THE YAZOO BASIN DEMONSTRATION EROSION CONTROL PROGRAM WILL PROVIDE FOR 30 CONTRACTS FOR BANK STABILIZATION, CHANNEL IMPROVEMENT, AND MAJOR AND MINOR GRADE CONTROL STRUCTURES. FUNDS REQUESTED FOR FY 1991 WILL PROVIDE FOR 6 BANK STABILIZATION ITEMS, 10 GRADE CONTROL STRUCTURES, 3 FLOODWATER DRAINAGE STRUCTURES, AND 48 MINOR GRADE CONTROL STRUCTURES.

ST. FRANCIS BASIN, ARKANSAS AND MISSOURI

THE ST. FRANCIS BASIN FLOOD CONTROL PROJECT IS LOCATED IN SOUTHEASTERN MISSOURI AND NORTHEASTERN ARKANSAS. THE PROJECT, UPON ITS COMPLETION, WILL PROVIDE PROTECTION AGAINST HEADWATER FLOODS OF THE ST. FRANCIS AND LITTLE RIVERS TO AN AREA OF OVER 1.4 MILLION ACRES. THE $10.2 MILLION REQUESTED IN FY 1991 WILL PERMIT RELOCATION WORK ON TWELVE BRIDGES AND CONSTRUCTION OF SIX CHANNEL ITEMS. THESE CHANNEL ITEMS TOTAL APPROXIMATELY 44 MILES OF CHANNEL IMPROVEMENTS.

WEST TENNESSEE TRIBUTARIES, TENNESSEE

THE WEST TENNESSEE TRIBUTARIES FLOOD CONTROL PROJECT IS LOCATED ON THE OBION AND FORKED DEER RIVERS AND THEIR TRIBUTARIES. NINETY MILES OF THE AUTHORIZED 225 MILES OF CHANNEL IMPROVEMENT HAVE BEEN COMPLETED AND 13,567 ACRES OF THE AUTHORIZED 32,000 ACRES OF MITIGATION LAND HAVE BEEN PURCHASED. THE STATE OF TENNESSEE IS THE LOCAL SPONSOR; HOWEVER, THEY HAVE DENIED WATER QUALITY CERTIFICATION AND ESSENTIALLY ALL CONSTRUCTION ACTIVITIES AND PURCHASE OF MITIGATION LANDS HAVE BEEN HALTED. WE ARE ANALYZING THE UNCOMPLETED REACHES OF THE PROJECT TO DETERMINE IF THERE ARE ANY LOCATIONS WHICH MIGHT REQUIRE ADDITIONAL CONSTRUCTION TO PROVIDE A STABLE TRANSITION FROM COMPLETED PROJECT CHANNELS INTO THE EXISTING UNIMPROVED CHANNELS. THIS ANALYSIS INCLUDES AN EXAMINATION OF THE NEED FOR ADDITIONAL PROTECTION AGAINST SOIL EROSION AT BRIDGES AND OTHER UTILITIES. WE ARE ALSO EXAMINING OUR OPTIONS FOR DISPOSITION OF PROJECT MITIGATION LANDS WHICH HAVE BEEN ACQUIRED. WE WILL COMPLETE THIS ANALYSIS WITH THE FUNDS REQUESTED FOR FY 1991.

HELENA HARBOR, PHILLIPS COUNTY, ARKANSAS

CONSTRUCTION OF HELENA HARBOR WAS INITIATED IN SEPTEMBER 1989. THE PROJECT WILL BE CONSTRUCTED IN TWO STAGES. THE FIRST STAGE WILL INCLUDE 2.25 MILES OF SLACKWATER NAVIGATION CHANNEL, A FLEETING AREA, TURNING BASIN, HARBOR PROTECTION LEVEE, TREE SCREEN AND 16 ACRES OF INDUSTRIAL FILL. THE FIRST STAGE CONSTRUCTION WILL BE COMPLETED BY AUGUST 1993.

NONCONNAH CREEK, TENNESSEE AND MISSISSIPPI

THE NONCONNAH CREEK PROJECT IS A NEW CONSTRUCTION START IN FY 1990. THE FIRST ITEM OF WORK, WHICH CONSISTS OF STABILIZATION WORKS AT KEY BRIDGE CROSSINGS, IS SCHEDULED FOR INITIATION IN JULY 1990. FUNDS REQUESTED FOR FY 1991 WILL COMPLETE THE BRIDGE PROTECTION WORKS, INITIATE PROTECTION WORKS AT THE BURLINGTON-NORTHERN RAILROAD, AND INITIATE THE FIRST ITEM OF CHANNEL IMPROVEMENT WHICH EXTENDS FROM THE MOUTH OF NONCONNAH CREEK UP TO MILE 6.2.

MEMPHIS HARBOR, ENSLEY BERM, TENNESSEE

IN ACCORDANCE WITH THE FY 1990 APPROPRIATIONS ACT, CONSTRUCTION OF THE ENSLEY BERM WILL BE INITIATED WITH THE AWARD OF A CONSTRUCTION CONTRACT IN JUNE 1990. THE FUNDS REQUESTED FOR FY 1991 WILL CONTINUE THE BERM CONSTRUCTION CONTRACT WHICH IS SCHEDULED FOR COMPLETION IN SEPTEMBER 1992.

MISSISSIPPI RIVER AND TRIBUTARIES - MAINTENANCE

OUR REQUEST FOR FY 1991 FOR THE MISSISSIPPI RIVER AND TRIBUTARIES MAINTENANCE PROGRAM IS $121 MILLION WHICH IS $7.9 MILLION MORE THAN ALLOCATED IN FY 1990. INCLUDED IN THE $121 MILLION REQUEST IS SLIGHTLY OVER $86 MILLION OR 71 PERCENT, FOR OPERATION AND MAINTENANCE OF MAIN STEM LEVEES, CHANNELS AND HARBORS WHICH PROVIDES FOR FLOOD PROTECTION FROM MISSISSIPPI RIVER FLOODS AND FOR NAVIGATION ON THE MISSISSIPPI RIVER AND ASSOCIATED HARBORS. ANOTHER $33 MILLION, OR 27 PERCENT, IS FOR OPERATION AND MAINTENANCE OF TRIBUTARY RIVER BASIN PROJECTS AND THE REMAINING $2 MILLION OR 2 PERCENT IS FOR OUR MAPPING AND INSPECTION OF COMPLETED WORKS PROGRAMS.

MR. CHAIRMAN, THIS CONCLUDES MY REPORT.

Mr. **Bevill**. Thank you. We will insert the justification material for the Lower Mississippi Valley Division and Mississippi River Commission in the record at this point, without objection.

[The information follows:]

Justification of Estimate for Civil Functions Activities
Department of the Army, Fiscal Year 1991

LOWER MISSISSIPPI VALLEY DIVISION

Corps of Engineers

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SUMMARY LOWER MISSISSIPPI VALLEY DIVISION

	FY 1990 Allocation	FY 1991 Request	Increase or Decrease
General Investigations			
Surveys	$3,598,000	$3,454,000	$-44,000
Preconstruction Engineering and Design	3,481,000	2,868,000	-613,000
Construction, General			
Construction	289,370,000 1/	210,058,000 2/	-79,312,000
Operation and Maintenance, General			
Project Operation and Maintenance	145,700,000	155,118,000	+9,418,000
General Regulatory Functions			
Regulatory Functions	5,200,000	5,760,000	+560,000
Total	$447,349,000	$377,258,000	$-70,091,000

1/ Includes $32,500,000 allocated from the Inland Waterway Trust Fund.
2/ Includes $37,500,000 to be derived from the Inland Waterway Trust Fund.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete After FY 91 ($)
1. SURVEYS - NEW					
a. Navigation Studies: None.					
b. Flood Damage Prevention Studies: None.					
c. Shoreline Protection Studies: None.					
d. Special Studies: None.					
e. Comprehensive Studies: None.					
f. Project Review Studies: None.					
TOTAL SURVEYS - NEW	0	0	0	0	0

2. SURVEYS - CONTINUING

a. Navigation Studies: The amount of $310,000 is requested for Fiscal Year 1991 to continue one navigation study and complete one study.

Louisiana

Bayou Lafourche and Lafourche-Jump Waterway, LA	288,000	186,000	80,000	22,000	0

The study area is located in southern Louisiana at Port Fourchon on Bayou Lafourche in Lafourche Parish and is a segment of the overall Bayou Lafourche and Lafourche Jump Waterway project. The currently authorized navigation project, with dimensions of 12 by 125 feet completed in 1963 under authority of the River and Harbor Act of 1960, was enlarged by the Greater Lafourche Port Commission in 1968 to 20 by 300 feet from Mile 4.0 to Mile 0.0 and in 1980 to 30 by 300 feet from Mile 0.0 to Mile -3.0. This channel provides access to the Gulf of Mexico for vessels serving the offshore oil rigs, the Louisiana Offshore Oil Port, and a large commercial fisheries industry. It is also available as a harbor of refuge for evacuation of the offshore rigs, equipment, and men during severe weather and hurricanes.

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Study	Total Estimated Federal Cost	Allocation Prior to FY 90	Allocation FY 90	Tentative Allocation FY 91	Additional to Complete After FY 91
	($)	($)	($)	($)	($)

The Greater Lafourche Port Commission has requested an investigation of the feasibility of Federal assumption of maintenance at the enlarged dimensions and further increases in channel depth. This study addresses the high priority needs of commercial navigation.

Fiscal Year 1990 funds are being used to complete the draft feasibility report, EIS and to prepare the final report and EIS. Fiscal Year 1991 funds will be used to print and distribute the revised report and to coordinate public involvement. The estimated cost of the feasibility phase is $426,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost-sharing is as follows:

Total Estimated Study Cost	$501,000
Reconnaissance Phase (Federal)	75,000
Feasibility Phase (Federal)	213,000
Feasibility Phase (non-Federal)	213,000

The reconnaissance phase was completed 3 December 1987. The feasibility study is scheduled for completion in April 1991.

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete After FY 91 ($)
Mermentau River, GIWW to the Gulf, LA	956,000	0	230,000	100,000	626,000

The study area is located in the southwestern part of Louisiana near Jennings, in Jefferson Davis and Cameron Parishes. Access to the Gulf of Mexico from the Jennings area is currently obtained via Freshwater Bayou or the Calcasieu River. This study, which addresses commercial navigation, will consider a direct route to the Gulf, which could save as much as 10 hours in travel time. In December 1986, the Jennings Navigation District and the City of Jennings requested an investigation of the feasibility of a navigation channel from the Mermentau River and GIWW to the Gulf of Mexico via Catfish Point Control Structure. Two probable alternatives would include a new land cut or maintenance of a channel through Grand Lake, which is too shallow to support commercial vessels. A ship builder and several oil related fabricators have expressed a desire to expand their facilities on the river, and would benefit from a shorter route. In addition, the large local fishing industry would also benefit. These industries feel they could become more competitive, and that substantial benefits could accrue to an economically depressed area which is experiencing 17.5 percent unemployment. Inasmuch as this is a commercial inland navigation project, the requirement for local sponsor sharing of the feasibility phase cost is not applicable. The study is in accord with Administration policy.

The funds requested for Fiscal Year 1990 are being used to initiate and complete the reconnaissance study. Fiscal Year 1991 funds will be used to initiate the feasibility phase of the study.

The reconnaissance phase is scheduled to be completed in March 1991. The feasibility study is scheduled for completion in September 1994.

TOTAL - Navigation	1,244,000	186,000	310,000	122,000	626,000

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete After FY 91 ($)
b. Flood Damage Prevention Studies: The amount of $3,332,000 is requested to continue thirteen flood damage prevention studies in Fiscal Year 1991.					
Arkansas					
Ouachita River Basin, Hot Springs, Garland County, AR	1,065,000	200,000	238,000	275,000	352,000

The city of Hot Springs, AR, is drained by Hot Springs, Gulpha, Stokes, and Molly Creeks, with a drainage area of 51 square miles. These creeks fall from 35 to 95 feet per mile and vary in top bank widths from 15 to 120 feet. The central business district lies in a narrow, approximately 300-foot-wide valley through which Hot Springs Creek flows.

Flooding along the Hot Springs Creek approaches catastrophic proportions in the central business district where the average rate of rise has reached 8.4 feet per hour and overbank depths have reached 9 feet with velocities of 15 feet per second. Two lives have been lost due to flooding--one during the flood of 15 February 1956 and the second during the flood of 16 July 1963.

Estimated damages from each major flood occurring in 1923, 1956, 1963, 1974, and 1982 range from $1,000,000 to $1,500,000. The 1923 and 1963 floods reached a depth of 9 and 7 feet, respectively, while the standard project flood would be a flood depth of 12.4 feet.

Fiscal Year 1990 funds are being used to complete the reconnaissance phase and initiate the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase. The preliminary estimated cost of the feasibility phase is $1,430,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,780,000
Reconnaissance Phase (Federal)	350,000
Feasibility Phase (Federal)	715,000
Feasibility Phase (non-Federal)	715,000

The reconnaissance phase is scheduled for completion in August 1990. The feasibility study is scheduled for completion in August 1993.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete After FY 91 ($)
Red River Basin, AR and LA, Comprehensive Study	2,880,000	450,000	342,000	425,000	1,663,000

The Red River Basin Comprehensive Study will address the development and efficient utilization of the water and related resources for that portion of the Red River Basin within Arkansas and Louisiana. The study area will include those parishes in Louisiana and counties in Arkansas that are within the watershed area of the Red River. The major water and related resource problems which will be addressed include commercial navigation, flood damage reduction, hydropower, water supply, and regional development. Types of solutions that may be considered range from single-purpose projects such as channel work or levees for flood control to multiple-purpose reservoirs to meet needs such as flood control, navigation, hydropower, and water supply. Local interests who will be involved in the study effort are the Louisiana Department of Transportation and Development and the Arkansas Soil and Water Conservation Commission. Both state organizations are aware of and understand the potential for cost sharing of the feasibility phase. A study for the Red River Basin, within Oklahoma, was recently completed by the Tulsa District.

Fiscal Year 1990 funds are being used to initiate the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase. The preliminary estimated cost of the feasibility phase is $4,860,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$5,310,000
Reconnaissance Phase (Federal)	450,000
Feasibility Phase (Federal)	2,430,000
Feasibility Phase (non-Federal)	2,430,000

The reconnaissance phase is scheduled for completion in August 1990. The feasibility study is scheduled for completion in September 1995.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete After FY 91 ($)
Illinois					
Alexander and Pulaski Counties, IL	916,000	369,000	248,000	150,000	149,000

The study area, approximately 740 square miles and a 1980 population of 27,400, consists of a major portion of the five southernmost counties in Illinois: Alexander, Pulaski, Union, Johnson, and Massac. The study area includes four distinct drainage basins: The Upper Cache Basin, located in Union, Johnson, and Massac Counties; the Lower Cache Basin, located in Alexander and Pulaski Counties; the Cairo, Mounds, and Mounds City area of Alexander and Pulaski Counties; and the Dogtooth Bend area of Alexander County. The study includes portions of the St. Louis, Memphis, and Louisville Districts. The purpose of the study is to determine the engineering, economic, and environmental feasibility of providing water resource improvements on the Cache River and its tributary streams. The area is plagued with very frequent drainage, flooding, erosion, and sedimentation problems. Structural solutions on the lower Cache River could result in flood damage reduction in the communities of Tamms and Ullin, Illinois. Non structural solutions could convert portions of the area to wetlands and/or National Wildlife Refuge. Buttonland Swamp, a 1,300 acre tract, is designated as a National Landmark.

During Fiscal Year 1990, the feasibility cost sharing agreement will be obtained and the feasibility study will be initiated with funds available. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,170,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,501,000
Reconnaissance Phase (Federal)	331,000
Feasibility Phase (Federal)	585,000
Feasibility Phase (non-Federal)	585,000

The reconnaissance phase was completed in July 1984; however, the Water Resources Development Act of 1986 required that a feasibility cost sharing agreement be obtained from the local sponsor. Subsequently, the Illinois Department of Conservation (IDOC) requested that this study be deferred. In August 1989, IDOC agreed to be the non-Federal participant. The feasibility study is scheduled for completion in September 1992.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete After FY 91 ($)
Louisiana					
Amite River and Tributaries	2,966,000	2,037,000	339,000	400,000	190,000

The study area encompasses the Amite River Drainage Basin, about 2,000 square miles in southeastern Louisiana and southwestern Mississippi. The basin includes portions of East Baton Rouge, Ascension, Livingston, East Feliciana, St. Helena, Iberville, St. James, and St. John the Baptist Parishes in Louisiana and Amite, Franklin, and Wilkinson counties in Mississippi. Major urban centers in the study area include Baton Rouge, Baker, Zachary, Gonzales, Sorrento, and Denham Springs, Louisiana. Flooding within the basin is caused by excessive rainfall that results in headwater and backwater overflows of the Amite River and Tributary Streams. Extensive flooding occurs in and around the major urban areas and on the large expanses of agricultural lands, woods, and swampland. Between 1973 and 1983, four major floods occurred. The 1983 flood was the flood of record. Over 357,000 acres were flooded causing flood damages estimated at a record $172,000,000. The study is addressing urban and agriculture flood damage reduction, recreation, water supply, and fish and wildlife enhancement.

Fiscal Year 1990 funds are being used to initiate feasibility phase studies for Darlington Reservoir, continue studies on East Baton Rouge, Livingston, and Ascension Parishes and complete studies for the Comite River Basin. The funds requested for Fiscal Year 1991 will be used to continue studies on Darlington Reservoir, Livingston and Ascension Parishes, and complete the East Baton Rouge Parish feasibility phase study. The estimated cost of the feasibility phase is $4,680,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests after the implementation date of cost sharing (15 March 1986). Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Cost	$5,130,000
Reconnaissance Phase (Federal)	450,000
Feasibility Phase (Federal)	2,516,000
Feasibility Phase (non-Federal)	2,164,000

The reconnaissance phase was completed in March 1985. The overall study is scheduled for completion in August 1993.

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete After FY 91 ($)
Louisiana					
Louisiana Coastal Area Hurricane Protection, LA	653,00	448,000	67,000	78,000	60,000

The study area as authorized includes all lands subject to tidal overflow in 20 coastal Louisiana parishes. The feasibility phase will concentrate on one area in the vicinity of Davis Pond. The area is predominantly estuarine marsh, bays, and sounds interlaced with a network of waterways, both natural and manmade. The marshes are an important buffer to devastating tidal surges induced by hurricanes and tropical storms. Land loss is a serious problem in this area. Louisiana coastal wetlands were being converted to open water at a rate of 35 square miles per year (1989) and this trend is expected to continue in the future. The continued loss of wetlands will increase the coastal communities susceptibility to flooding. This study will address the problem of hurricane induced flooding and flood protection measures. As a result of the findings of the reconnaissance study, the feasibility phase will be limited to an area on the west bank of the Mississippi River in St. Charles Parish.

Fiscal Year 1990 funds are being used to initiate the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $470,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$888,000
Reconnaissance Phase (Federal)	418,000
Feasibility Phase (Federal)	235,000
Feasibility Phase (non-Federal)	235,000

The reconnaissance phase is scheduled for completion in March 1990. The feasibility study is scheduled for completion in March 1993.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete After FY 91 ($)
Louisiana Coastal Area Land Loss and Marsh Creation, LA	1,696,000	1,206,000	157,000	171,000	162,000

The study area includes all lands subject to tidal overflow in 20 coastal Louisiana parishes. The area is predominantly estuarine marsh, bays and sounds interlaces with a network of waterways. Louisiana coastal wetlands were being converted to open water at a rate of 35 square miles per year (1989), and this trend is expected to continue in the future. The continued loss of vegetated wetlands threatens urban and rural development and will adversely affect commercial fish and wildlife resources, including nationally significant commercial fisheries. Investigations will continue to evaluate plans to reduce land loss and provide flood damage reduction and shore protection through the creation and preservation of wetlands.

The Louisiana Department of Natural Resources signed a contract to cost share the feasibility portion of the study on 26 December 1984. The feasibility phase was initiated in Fiscal Year 1985, and is continuing based on an agreement with the Louisiana Department of Natural Resources to share 50 percent of the feasibility phase cost. Cost-sharing was implemented on 15 April 1986. Fiscal Year 1990 funds are being used to complete feasibility-phase engineering, environmental, and economic investigations to develop a plan for creating marsh in Plaquemines, St. Bernard, and Jefferson Parishes; and to initiate feasibility-phase engineering, environmental, and economic investigations for developing a plan to create marsh in Terrebonne, Lafourche, Cameron, Vermilion, Iberia, and St. Mary Parishes. The funds requested for Fiscal Year 1991 will be used to complete studies in Terrebonne Parish and continue studies for these parishes. The preliminary estimated cost of the feasibility phase is $2,366,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests after the implementation date of cost sharing. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,766,000
Reconnaissance Phase (Federal)	400,000
Feasibility Phase (Federal)	1,296,000
Feasibility Phase (non-Federal)	1,070,000

The reconnaissance phase was completed in April 1985. The feasibility study is scheduled for completion in July 1992.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete After FY 91 ($)
Louisiana Coastal Area Louisiana Comprehensive Coastal Wetlands, LA	1,452,000	358,000	350,000	563,000	181,000

Louisiana coastal marshes are being converted to open water at a rate of 35 square miles per year (1989), and this trend is expected to continua in the future. The continued loss of marshland will adversely affect commercial fish and wildlife resources and urban and rural development. The purpose of this study is to develop a comprehensive plan for dealing with wetland loss problems within coastal Louisiana by bringing the numerous Federal, state, and local agencies, and the many studies and proposed solutions, under one umbrella study with the New Orleans District as the lead Federal Agency.

Fiscal Year 1990 funds are being used to initiate the feasibility phase. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $2,188,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of cost sharing is as follows:

Total Estimated Study Cost	$2,546,000
Reconnaissance Phase (Federal)	358,000
Feasibility Phase (Federal)	1,094,000
Feasibility Phase (non-Federal)	1,094,000

The reconnaissance phase is scheduled for completion in March 1990. The feasibility study is scheduled for completion in February 1993.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete After FY 91 ($)
Mermentau, Vermilion, and Calcasieu Rivers and Bayou Teche, LA	5,359,000	3,711,000	550,000	460,000	638,000

The study area, encompassing all of the drainage basins of the Mermentau, Vermilion, and Calcasieu Rivers and Bayou Teche, a composite drainage area of about 11,500 square miles, is located in southwestern Louisiana between the Atchafalaya Basin and the Sabine River. This area contains 16 parishes, with a population of 1,026,000 (1980 census). Included under this study are some 30 features of improvement or modification to existing improvements dealing with flood control, major drainage, navigation, water supply, water quality control, saltwater intrusion, recreation, fish and wildlife, and other related water and land resources. Several interim studies are included in this study. The only active study is the Grand and White Lakes Water Management study in the coastal Louisiana area located between the Calcasieu and Vermilion Rivers and includes the parishes of Cameron, Vermilion, Acadia, and Jefferson Davis. Four Federal control structures in the area (Leland Bowman Lock, Calcasieu Lock, Schooner Bayou Control Structure, and Catfish Point Control Structure) prevent saltwater intrusion into the lakes and provide a means of controlling water levels to some degree. The study will consider water management in the area to supply irrigation water of sufficient quantity and quality for rice farming, provide flood protection to agricultural area and rural residences, maintain water levels sufficient for navigation, and enhance commercial fisheries production and fish and wildlife values in the area. This study addresses the high priority needs of commercial navigation and flood damage reduction in accord with Administration priorities. A wide range of alternatives is being considered for this multiple purpose project. These include bypass structures (weirs) at Catfish Point and Schooner Bayou to admit juvenile marine and estuarine organisms, flood reduction measures including flow diversions and increased outlets, channel closures to reduce saltwater intrusion, and seasonal variation of water levels to benefit wildlife.

Fiscal Year 1990 funds are being used on the Grand and White Lakes interim study to complete work on hydraulic analyses using the mathematical model of the study area and begin the economic and environmental analyses. The funds requested for Fiscal Year 1991 will be used to continue economic and environmental analyses and prepare the draft feasibility report and EIS.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 90	Allocation FY 90	Tentative Allocation FY 91	Additional to Complete After FY 91
	($)	($)	($)	($)	($)

Interim studies and their completion dates are as follows: (1) Mermentau River, Gulf of Mexico Navigation Channel, September 1975; (2) New Iberia to the Gulf of Mexico Navigation Channel, August 1981; (3) Lake Charles Flood Control Study, July 1984; (4) Lake Charles Ship Channel Study, November 1987; (5) Grand and White Lakes Water Management Study, reconnaissance report, 1 June 1984; feasibility study scheduled for completion, December 1991. The overall study report of the Division Engineer is scheduled for completion in September 1996.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete After FY 91 ($)
Mississippi					
Caney Creek, Jackson, MS	410,000	0	160,000	100,000	150,000

The Caney Creek study area is located within the corporate limits of Jackson, MS. The problems and needs that have been identified include urban flooding and bank caving. Approximately 300 to 400 homes, as well as several commercial establishments, are located in the 100-year flood plain of Caney Creek. Highly erodible soils along Caney Creek in conjunction with high velocity stream currents result in extensive bank caving. Numerous residents along Caney Creek have lost most of their backyard property to bank erosion with several homes already endangered. If these areas are left unprotected, residents will lose their entire backyards and additional homes will be endangered. Residents have found their homes to be unsalable at normal market value because of these probelms. Erosion of backyards and flooding of homes can be expected to continue or worsen as the problem continues. The area is also subject to flash-type flooding with homeowners having very little time to prepare. Significant flooding in the area occurred in 1979; and since 1979, approximately 50 homes have flooded repeatedly, some as much as five times with depths up to 5 feet. The April 1983 flood, estimated to be a 15-year frequency flood event, damaged approximately 100 homes and commercial establishments and resulted in damages exceeding $2,400,000. Floodwater normally remains in the homes for 3 to 4 hours. The high velocity stream currents in the area pose an additional threat to property and life. Local interests and congressional interests have requested that the Corps of Engineers evaluate measures to address water resources problems along Caney Creek.

Fiscal Year 1990 funds are being used to fully fund the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to initiate the feasibility phase of the study, assuming favorable findings from the reconnaissance report. Possible solutions include various alternatives for channel improvement with streambank protection. The preliminary estimated cost of the feasibility phase is $500,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 90	Allocation FY 90	Tentative Allocation FY 91	Additional to Complete After FY 91
	($)	($)	($)	($)	($)

Total Estimated Study Cost	$660,000
Reconnaissance Phase (Federal)	160,000
Feasibility Phase (Federal)	250,000
Feasibility Phase (non-Federal)	250,000

The reconnaissance phase is scheduled for completion in May 1991. The feasibility study is scheduled for completion in May 1994.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 90	Allocation FY 90	Tentative Allocation FY 91	Additional to Complete After FY 91
	($)	($)	($)	($)	($)
Jackson Metropolitan Area, MS	850,000	350,000	0	250,000	250,000

The Jackson Metropolitan Area, MS, a primary regional economic center, has major flood problems attributable to the Pearl River, with annual flood damages of approximately $12,000,000. The flood of record occurred in April 1979 causing an estimated $300,000,000 in damages to the Jackson area. The Shoccoe Dam Project was authorized for construction by the Water Resources Development Act of 1986, Public Law 99-662, to provide needed flood protection to the Jackson area. However, Shoccoe Dam is no longer implementable from a local interest standpoint. In April 1988, Shoccoe's local sponsor, the Pearl River Basin Development District, requested the U.S. Army Corps of Engineers to undertake an investigation of alternative flood control measures to Shoccoe Dam. Funds to accomplish the reconnaissance phase at full Federal expense were provided in February 1989.

The funds requested for Fiscal Year 1991 will be used to initiate the feasibility phase of the study. The primary alternative under consideration is a comprehensive levee system to protect the Jackson Metropolitan Area. A review of the existing Corps Jackson-East Jackson Levee project will also be included. The preliminary estimated cost of the feasibility phase is $1,000,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,350,000
Reconnaissance Phase (Federal)	350,000
Feasibility Phase (Federal)	500,000
Feasibility Phase (non-Federal)	500,000

The reconnaissance phase is scheduled for completion in December 1990. The feasibility study is scheduled for completion in December 1993.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 90	Allocation FY 90	Tentative Allocation FY 91	Additional to Complete After FY 91
	($)	($)	($)	($)	($)
Missouri					
Cuivre River Area and Vicinity, MO	1,000,000	400,000	45,000	135,000	420,000

The study area under consideration embraces approximately 2,136 square miles tributary of the Mississippi River between the mouth of the Missouri and mile 300, excluding the Salt and Illinois Rivers. The Cuivre River Basin accounts for about 58 percent of this area. The remaining land is flood plain level tributary to the Mississippi River. The Cuivre River Basin is subject to urban and agricultural damages on an annual basis. Additional flood protection is also required for the area within the floodplain of the Mississippi River. A wide range of both non-structural and structural measures will be considered to address the flooding and land related problems and opportunities. The State of Missouri is the potential sponsor and has indicated verbally their willingness to consider applicable cost sharing of the feasibility phase contingent on the results of the Federally funded reconnaissance report.

Fiscal Year 1990 funds are being used to initiate the feasibility phase. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,200,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,600,000
Reconnaissance Phase (Federal)	400,000
Feasibility Phase (Federal)	600,000
Feasibility Phase (non-Federal)	600,000

The reconnaissance phase is scheduled for completion in August 1990. The feasibility study is scheduled for completion in September 1993.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete After FY 91 ($)
Dardenne Creek, MO	897,000	0	129,000	170,000	598,000

The Dardenne Creek watershed is a 123 square mile rapidly urbanizing area located in the central part of St. Charles County, Missouri. A portion of the city of St. Charles and portions of other smaller communities lie within the watershed. The area includes 2,600 acres of highly productive agricultural lands that are flooded on the average, once every 10 years, causing about $200,000 in damages. In addition, urban areas are subject to flooding approximately every 10 years resulting in about $200,000 in damages. The recent flood of record, (1983), caused $300,000 in damages, and 1986 flooding caused $80,000 in damages. The study area problems include flooding, erosion, water quality control, potential nuclear waste contamination, outdoor recreation needs, and a general environmental degradation due to continuing urbanization. The potential alternative solutions include: non-structural measures; detention storage; channel enlargements and cutoff; levees and floodwalls; wetlands preservation and/or recreation; and cooperation with the Department of Energy regarding nuclear waste cleanup.

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Fiscal Year 1990 funds are being used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase and initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,276,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,535,000
Reconnaissance Phase (Federal)	259,000
Feasibility Phase (Federal)	638,000
Feasibility Phase (non-Federal)	638,000

The reconnaissance phase is scheduled for completion in April 1991. The feasibility study is scheduled for completion in July 1994.

29 JAN 1990

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 90	Allocation FY 90	Tentative Allocation FY 91	Additional to Complete After FY 91
	($)	($)	($)	($)	($)
Plattin Creek, MO	650,000	0	250,000	155,000	245,000

The Plattin Creek rises in St. Francois County, Missouri, and flows north 24 miles until it enters the Mississippi River near Crystal City, Missouri. The study area includes approximately 94 square miles of drainage area covering parts of Jefferson, St. Francois, and Ste. Genevieve Counties. The watershed is predominantly in agricultural use but is becoming increasingly urbanized.

Commercial and residential portions of Crystal City and Festus have flooding problems. The flooding generally inundates the sewage treatment facility that serves both Crystal City and Festus. Problems are caused both by backwater flooding associated with high Mississippi River stages and flash flooding along Plattin Creek produced by heavy rainfall.

Fiscal Year 1990 funds are being used to initiate and complete the reconnaissance study. The funds requested for Fiscal Year 1991 will be used to obtain the feasibility cost-sharing agreement and initiate the feasibility phase. The preliminary estimated cost of the feasibility phase is $800,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,050,000
Reconnaissance Phase (Federal)	250,000
Feasibility Phase (Federal)	400,000
Feasibility Phase (non-Federal)	400,000

The reconnaissance phase is scheduled for completion in April 1991. The feasibility phase is scheduled for completion in September 1993.

TOTAL - Flood Damage Prevention	20,794,000	9,529,000	2,875,000	3,332,000	5,058,000

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete After FY 91 ($)
c. Shoreline Protection Studies: None.					
d. Special Studies: None.					
e. Comprehensive Studies: None.					
f. Project Review Studies: None.					
TOTAL SURVEYS - CONTINUING	22,038,000	9,715,000	3,185,000	3,454,000	5,684,000
TOTAL SURVEYS	22,038,000	9,715,000	3,185,000	3,454,000	5,684,000

29 JAN 1990

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 90	Allocation FY 90	Tentative Allocation FY 91	Additional to Complete After FY 91
	($)	($)	($)	($)	($)
3. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - NEW					
a. Navigation: None.					
b. Flood Control: None.					
c. Shoreline Protection: None.					
d. Multiple Purpose Power: None.					
TOTAL PED - NEW	0	0	0	0	0

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete After FY 91 ($)
4. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - CONTINUING					
a. Navigation: None.					
b. Flood Control: The amount of $2,868,000 is requested in Fiscal Year 1991 to continue five PED activities and complete one PED activity.					
Louisiana					
Aloha-Rigolette, LA	1,100,000	0	531,000	400,000	169,000

The Aloha-Rigolette drainage area comprises approximately 418 square miles (267,400 acres). This rural area is located in north-central Louisiana between the towns of Winnfield and Pineville on the left descending bank of the Red River and includes portions of Winn, Rapides, and Grant Parishes. In the mid-1950's, flood control improvements were constructed consisting of a levee along the Red River and two 10- by 10-foot culverts with floodgates in the levee at the mouth of Bayou Rigolette to prevent flood damages. The floodgates serve as the only means of evacuating water from the Basin. Since the mid-1950's; agricultural development in the Basin has increased dramatically; therefore, the amount of rainfall runoff has increased. The streams in the area and the existing floodgates are now overtaxed by Basin runoff. Consequently, runoff from moderate floods, such as those which occur every 2 to 3 years, causes streambank overflow in the alluvial plain and the headwater ponding at the floodgates. On an average annual basis, approximately 6,496 acres of cleared land are flooded. The feasibility report was approved on September 8, 1989. The tentatively selected project, estimated to cost $8,000,000, includes culvert construction with floodgates and clearing and snagging operations in Bayou Darrow, construction of a closure on Saline Bayou Diversion Canal, construction of a closure and low-flow structure on Bayou Rigolette, and mitigation. Of the $8,000,000 total cost, $2,000,000 is non-Federal cost. The construction is to be cost shared 75 percent Federal and 25 percent non-Federal. The non-Federal portion is not to be paid until initiation of construction. The Grant Parish Police Jury has agreed to cost share the project. The average annual benefits amount to approximately $1,000,000, all for flood control. The benefit-cost ratio is 1.2 to 1.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 90	Allocation FY 90	Tentative Allocation FY 91	Additional to Complete After FY 91
	($)	($)	($)	($)	($)

The project is not authorized for construction.

In accordance with cost-sharing concepts reflected in the Water Resources Development Act of 1986, the preconstruction engineering and design phase will include all work after the feasibility phase.

Fiscal Year 1990 funds are being utilized to initiate the General Design Memorandum and Feature Design Memorandum. Fiscal Year 1991 funds will be used for completion of the General Design Memorandum and Feature Design Memorandum and initiate plans and specifications.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete After FY 91 ($)
Comite River, LA	3,500,000	0	50,000	700,000	2,750,000

The Comite River is a major tributary of the Amite River. The Comite River drains an area of 348 square miles of agricultural land and urban development in southeast Louisiana. The Comite River has its confluence with the Amite River in the vicinity of Denham Springs, Louisiana. The Amite River empties into Lake Maurepas 54 miles below its confluence with the Comite River. The maximum flood of record in the Amite River Basin occurred in 1983 and caused approximately $171,000,000 in damages, relative to October 1983 price levels, including $48,000,000 occurring in the Comite River Subbasin. East Baton Rouge Parish experienced $65,200,000 in damages, with 75 percent of the damages occurring along the Comite River and its tributary system. A feasibility report for the Comite River portion of the Amite River and Tributaries study was initiated in April 1985 and is scheduled for completion in August 1990. The recommended Comite River project, estimated to cost about $60,000,000, consists of a 12 mile diversion channel, with associated control structures, from the Comite River to the Mississippi River. The estimated average annual benefits amount to $10,213,000. The estimated benefit-cost ratio is 1.49 to 1.

This project is not authorized for construction.

Fiscal Year 1990 funds are being used to initiate preconstruction engineering and design. Fiscal Year 1991 funds will be used to continue preconstruction engineering and design. Emphasis will be placed on engineering design studies. Completion of preconstruction engineering and design is scheduled for September 1995.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 90	Allocation FY 90	Tentative Allocation FY 91	Additional to Complete After FY 91
	($)	($)	($)	($)	($)
Tangipahoa, Tchefuncte, and Tickfaw Rivers, LA	1,347,000	0	524,000	50,000	773,000

The study is located in southeast Louisiana and southwest Mississippi and encompasses parts of five parishes in Louisiana and two counties in Mississippi. The area is primarily rural with numerous small urban centers. Due to the close proximity to the New Orleans and Baton Rouge metropolitan areas, the study area is experiencing rapid population growth and urbanization. Some portions of the area are subject to headwater flooding and other portions are subject to tidal as well as headwater flooding. In April 1983, widespread flooding occurred in the area that resulted in a Federal disaster declaration. The flooding was the result of a storm occurrence with an estimated frequency of once in 20 to 40 years. The dollar value of damage to dwellings and farm buildings and machinery in St. Tammany Parish alone was $3,500,000. Dollar values were not estimated for damages in other parishes. After the 1983 flood, extensive local, state, and Congressional concern was expressed for the flood problem. As a result, a resolution of the U.S. House of Representatives Committee on Public Works and Transportation was adopted on 8 August 1984, to determine the advisability of improvements for hurricane protection, flood control, and related purposes. Subsequently, the Water Resources Development Act of 1986 (PL 99-662) authorized planning, engineering, and design, which for this project, begins with the feasibility phase. However, it is necessary to perform the reconnaissance phase, because there have been no prior studies of the project area, and therefore, no field data upon which to base feasibility efforts. The Louisiana Department of Transportation and Development expressed strong support for a study of flood problems in the area and stated their intent to cost-share in the feasibility study, subject to the availability of funds. The study will address urban as well as non-urban flood damage reduction, which are high priority outputs.

Fiscal Year 1990 funds are being used to fully fund the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,646,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 90	Allocation FY 90	Tentative Allocation FY 91	Additional to Complete After FY 91
	($)	($)	($)	($)	($)
Total Estimated Study Cost	$2,170,000				
Reconnaissance Phase (Federal)	524,000				
Feasibility Phase (Federal)	823,000				
Feasibility Phase (non-Federal)	823,000				

The reconnaissance phase is scheduled for completion in August 1991. The feasibility study is scheduled for completion in August 1995.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 90	Allocation FY 90	Tentative Allocation FY 91	Additional to Complete After FY 91
	($)	($)	($)	($)	($)
Upper Bayou Teche, LA	1,100,000	0	50,000	400,000	650,000

The study area is located in central Louisiana to the west of the Atchafalaya Basin and includes five parishes--St. Landry, Lafayette, Vermilion, St. Martin and Iberia. Numerous Federal drainage and flood control projects in the area have produced a complicated drainage system. The Teche-Vermilion Basins water supply project, completed in 1982, supplements low flows in Bayou Teche and the Vermilion River with water pumped from the Atchafalaya River. Since project completion, full pumping capacity has not been utilized due to inadequate flow capacity of Upper Bayou Teche. Inadequate fresh water supplies contribute to saltwater intrusion in the lower parts of the basin. Saltwater intrusion in the agricultural water supply results in reduced yields to rice and crawfish farmers when compared to other areas of the state. Over 10,000 acres of rice and 12,000 acres of crawfish are affected by lack of fresh water. It is projected that rice yields could increase by 20 percent and crawfish production more than double if an adequate supply of fresh water were available. The feasibility report is scheduled for completion in August 1990. Alternatives under consideration include channel enlargement in Bayou Teche, construction of a conveyance channel, and modification of operating procedures. Project first costs range from $1,100,000 to $37,000,000. The benefit cost ratios range from 0.85 to 8.0.

This project has not been authorized for construction.

Fiscal Year 1990 funds are being used to initiate preconstruction engineering and design. Fiscal Year 1991 funds will be used to continue preconstruction engineering and design, which is scheduled for completion in January 1994.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete After FY 91 ($)
Missouri					
Coldwater Creek, MO	1,900,000	0	600,000	600,000	700,000

Coldwater Creek drains an area of 47 square miles in north St. Louis county and empties into the Missouri River. The flood plain includes about 2,300 acres, about half of which is urban development. The maximum flood of record, that of June 1957, would cause an estimated $6,300,000 in damages to property in the project area under October 1989 prices and conditions of development. The Department of Energy has found radioactive material in the sediments of Coldwater Creek downstream from the Lambert Airport. The Department of Energy plans to clean up this material. The Feasibility Report is currently under review at the Washington Level. The recommended project, estimated to cost $22,400,000 at October 1989 prices, includes construction of 10 miles of channel widening, modification of a railroad drainage structure, two small levees, a flood forecasting and warning system, and recreation facilities associated with some components of the flood control plan. The average annual benefits at October 1986 price levels amount to $2,871,000, 86% of which is for flood control. The benefit cost ratio is 1.5 to 1.

The project is not authorized for construction.

In accordance with the cost sharing concepts reflected in the Water Resources Development Act of 1986, local interests are required to pay $6,880,000 (October 1989 price level) as follows: five percent of the costs allocated to flood control, presently estimated at $1,063,000; provide lands, easements, rights-of-way and dredged material disposal areas, presently estimated at $4,579,000; perform all related necessary relocations, presently estimated at $777,000; pay 25% of the cost of a flood forecasting system, presently estimated at $18,000; and pay one-half of the separable costs allocated to recreation presently estimated at $443,000. Local interest are also required to bear all costs of operation, maintenance and replacement of flood control facilities, estimated at October 1986 prices to be $47,000 annually, and recreation facilities estimated to be $5,000 annually.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 90	Allocation FY 90	Tentative Allocation FY 91	Additional to Complete After FY 91
	($)	($)	($)	($)	($)

Fiscal Year 1990 funds are being utilized to initiate preconstruction engineering and design. First priority is being given to the design of the 2.16 miles of channel widening that is located up stream of Lambert Airport and not contaminated by radioactive material. Fiscal Year 1991 funds will be used to continue design work on the overall project. Preconstruction engineering and design is scheduled for completion in September 1992.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 90	Allocation FY 90	Tentative Allocation FY 91	Additional to Complete After FY 91
	($)	($)	($)	($)	($)
River des Peres, MO	1,600,000	382,000	500,000	718,000	0

River des Peres drains an area of 111 square miles in St. Louis city and county and empties into the Mississippi River. The flood plain encompasses about 7,500 acres of mostly urban development. The maximum flood record, that of 1957, would have caused an estimated $12,300,000 damages in property in the project area under October 1989 prices and conditions of development. A Feasibility Report was completed and the Division Commander's Notice was issued 31 March 1988. The Feasibility Report is currently under review at the Washington level. The recommended project, estimated to cost $20,550,000 (1989 price level), includes 5.02 miles of channel modification, flood proofing measures, a flood forecasting and warning plan and selected recreation/environmental features associated with components of flood control plan. The average annual benefits amount to $2,592,000, 93% of which is flood control. The benefit cost ratio is 1.3 to 1.

The project is not authorized.

In accordance with the cost sharing concepts reflected in the Water Resources Development Act of 1986, local interests are required to pay $5,280,000 as follows: five percent of the costs allocated to flood control, presently estimated at $987,000; pay at least 25 percent, but not in excess of 50 percent, in cash, of the cost of the project assigned to flood control, presently estimated at $693,000; to provide lands, easements, rights-of-way and dredged material disposal areas, presently estimated at $1,552,000; perform all related necessary relocations, presently estimated at $1,704,000; pay 25% of the cost of non-structural flood control measures presently estimated at $82,000; bear all costs of operation, maintenance and replacement of flood control facilities presently estimated at $216,000 annually; pay one-half of the separable costs allocated to recreation presently estimated at $262,000; and bear all costs of operation, maintenance and replacement of recreation facilities presently estimated at $5,000 annually.

Fiscal Year 1990 funds are being used to continue work on the General Design Memorandum. The funds requested for Fiscal Year 1991 will be used to complete preconstruction engineering and design which is scheduled for completion in September 1991.

TOTAL - Flood Control	10,547,000	382,000	2,255,000	2,868,000	5,042,000

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991, Lower Mississippi Valley Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 90	Allocation FY 90	Tentative Allocation FY 91	Additional to Complete After FY 91
	($)	($)	($)	($)	($)
c. Shoreline Protection: None.					
d. Multiple Purpose Power: None.					
TOTAL PED - CONTINUING	10,547,000	382,000	2,255,000	2,868,000	5,042,000
TOTAL PED	10,547,000	382,000	2,255,000	2,868,000	5,042,000
GRAND TOTAL	32,585,000	10,097,000	5,440,000	6,322,000	10,726,000

29 JAN 1990

APPROPRIATION TITLE: Construction, General - Locks and Dams (Navigation)

PROJECT: Melvin Price Lock and Dam, Illinois and Missouri (Continuing)

LOCATION: Melvin Price Lock and Dam is located in Madison County, Illinois and St. Charles County, Missouri at approximately Mile 200.8 above the mouth of the Ohio River in the vicinity of Alton, Illinois approximately two miles downstream from the existing Locks and Dam 26.

DESCRIPTION: The project plan provides for the construction of one 1,200-foot lock and a new gated dam with 9 tainter gates, provision for expansion, and overflow dike about 2 miles downstream of the existing structure; removal of most of the existing structure; and relocation/abandonment of the Burlington-Northern Railroad bridge. Mitigation lands will be provided to compensate for wildlife losses due to creation of a new pool for the 2-mile distance downstream of existing structure. Recreation facilities are not scheduled pending development of cost sharing agreements with local interest for construction and non-Federal operation and maintenance, consistent with the Water Resources Development Act of 1986 (Public Law 99-662). Removal of the intermediate lock wall and the main lock guidewalls of the existing Locks and Dam No. 26 is unscheduled. This work must coincide with the completion of a new highway bridge, immediately downstream of the existing project.

AUTHORIZATION: Internal Revenue Code of 1954 Title I - Replacement of Locks and Dam 26; Upper Mississippi River System Comprehensive Master Management Plan, 21 October 1978.

REMAINING BENEFIT - REMAINING COST RATIO: The remaining benefit - remaining cost ratio is not applicable as the project is nearing completion.

TOTAL BENEFIT - COST RATIO: 2.1 to 1 at 6 7/8 percent.

INITIAL BENEFIT - COST RATIO: 1.6 to 1 at 6 7/8 percent (FY 1974).

BASIS OF BENEFIT - COST RATIO: Based on Supplement No. 2 to Design Memorandum No. 2 approved on 31 August 1979 at October 1978 price levels.

SUMMARIZED FINANCIAL DATA			STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		742,400,000			
Scheduled Construction	733,430,000				
Unscheduled Construction	8,970,000		Entire Project	83	Oct 1992
			Open to Navigation		Dec 1989

Estimated Non-Federal Cost			3,610,000	
Scheduled Construction		0		
Unscheduled Construction		3,610,000		
Cash Contributions	3,610,000			
Other Costs	0			
Total Estimated Scheduled Construction Cost			733,430,000	
Total Estimated Unscheduled Construction Cost			12,580,000	
Total Estimated Project Cost			746,010,000	
				Accum % of Est Fed Cost
Allocations to 30 September 1989			618,868,000 1/	
Conference Allowance for FY 1990			35,000,000	
Allocation for FY 1990			30,261,000 2/	
Allocations through FY 1990			649,129,000	87
Allocation Requested for FY 1991			29,000,000	91
Scheduled Balance to Complete after FY 1991			55,301,000	
Unscheduled Balance to Complete after FY 1991			8,970,000	

1/ Includes $1,320,000 to initiate design of Melvin Price Lock and Dam, Second Lock in FY 1985.

2/ Reflects reduction of $3,376,000 assigned as Savings and Slippage, $360,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $1,003,000 reprogrammed from the project.

PHYSICAL DATA

Lock: One, 1,200 feet x 110 feet
Dam: Non-navigable 9 tainter gates
Overflow Dike: Earth Embankment - 2000 feet
Spur Dike: Earth Embankment - 2.4 miles
Relocations: Railroad ($16,169,000); Roads ($2,260,000); Utilities ($15,471,000)
Pumping Plant: 1 - 225 cubic feet per second
Lands and Damages: Acres - 4,193; Type - Predominantly crop, brush and timberland and some commercial, recreation and industrial land fronting river.
Improvements - Industrial, commercial, and recreation buildings.

JUSTIFICATION: The poor physical condition of the existing Locks and Dam 26 and the inability of the locks to handle current and projected traffic without costly delays makes replacement imperative. Both the dam and locks are set on piles, which are driven into the riverbed sands and are not supported by bedrock. The structure, which was placed in operation in 1938, has a history of excessive deflections, settlements, and loss of foundation material. Remedial measures have been made and are being continued to correct deficiencies but permanent repair is impractical because of engineering and cost considerations.

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It is estimated that approximately 68,800,000 tons will pass through the locks in 1989. The average delay to tows is estimated at approximately 10.5 hours. This congestion causes costly delays for the tonnage passing through Locks 26, which has a value of approximately $18 billion. Grains, chemicals, and energy commodities account for over 80 percent of this traffic. Based on the Master Plan Study (authorized by P.L. 95-502) a single 110 foot by 1,200 foot lock would have an estimated capacity of 94,000,000 to 100,000,000 tons per year. The 1,200 foot length will permit tows to lock as a single unit, thus eliminating the delays from double locking. Average annual benefits based on 1 October 1978 prices are as follows:

Annual Benefits	Amount
Navigation	82,678,000
Regional Redevelopment	268,000
Recreation	469,000
Total	83,415,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue:	Dam-Third Stage and Esplanade Fill	19,000,000
	As-Built Drawings, Foundation Reports	145,000
	Miscellaneous Operating Equipment	100,000
Complete:	Lands and Damages	1,025,000
	Boundary Monumentation	94,000
	Existing Dam and Bridge Removal	4,276,000
	As-Built Drawings	24,000
	Access Road - Missouri Side	353,000
	Vegetative Management	106,000
	O&M during Construction	2,000
Engineering and Design		1,300,000
Supervision and Administration		2,575,000
Total		$29,000,000

NON-FEDERAL COST: In accordance with the Cost Sharing and financing concepts reflected in the Water Resources Development Act of 1986 the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Pay one half of the separable and joint costs allocated to recreational navigation and bear all costs of operation, maintenance and replacement of recreational navigation facilities.	$3,610,000	$294,000
Total Non-Federal Costs	$3,610,000	$294,000

STATUS OF LOCAL COOPERATION: The State of Missouri had reviewed the proposed plan for recreation facilities and submitted an updated letter of intent on 15 December 1983 to cost-share on a 50-50 percent basis the initial cost of the development and to operate and maintain the facilities following completion of construction. By letter of 3 October 1985, the Missouri Inter-Agency Council For Outdoor Recreation withdrew the state's intent to participate in the recreation features of the project, due to anticipated development costs, operation and maintenance costs, and the availability of private facilities presently serving Pool 26.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (Corps of Engineers) cost estimate of $742,400,000 is a decrease of $1,100,000 from the latest estimate ($743,500,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$-4,628,000
Design Changes	+5,245,000
Post Contract Award and Other Estimating Adjustments	-2,267,000
Sundry	+ 550,000
Total	$-1,100,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on nvironmental Quality on 24 August 1976 and published in the Federal Register on 8 September 1976.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1970 and funds to initiate construction were appropriated in FY 1974.

In accordance with Public Law 97-118, dated 29 December 1981, the project name has changed from Lock and Dam 26 (Replacement) to Melvin Price Lock and Dam.

The city of Alton, Illinois is developing recreation facilities along the river front, in the vicinity of the existing structure. They have been advised that based on current project authorization, which specifies that project recreation development is to be cost shared with the State of Missouri, this development would be a non-Federal responsibility.

Fish and Wildlife Mitigation costs are $3,426,000.

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APPROPRIATION TITLE: Construction, General - Locks and Dams (Navigation)

PROJECT: Melvin Price Lock and Dam, Second Lock, Illinois and Missouri (Continuing)

LOCATION: Melvin Price Lock and Dam, Second Lock, is located adjacent to the Melvin Price Lock and Dam in the Mississippi River at Madison County, Illinois and St. Charles County, Missouri, river mile 200.8 above the mouth of the Ohio River in the vicinity of Alton, Illinois, approximately 2 miles downstream from the existing Locks and Dam 26.

DESCRIPTION: The project provides for construction of a second lock, 600 feet long by 110 feet wide. All work is scheduled.

AUTHORIZATION: Supplemental Appropriation Act of 1985 and Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 7.6 to 1 at 8 1/8 percent.

TOTAL BENEFIT - COST RATIO: 6.1 to 1 at 8 1/8 percent.

INITIAL BENEFIT - COST RATIO: 8.0 to 1 at 8 1/8 percent (FY 1985).

BASIS OF BENEFIT - COST RATIO: Based on the Comprehensive Master Plan for the Management of the Upper Mississippi River System dated October 1980 at October 1980 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		230,000,000
General Appropriations	115,000,000	
Inland Waterway Trust Fund	115,000,000	
Estimated Non-Federal Cost		0
Total Estimated Project Cost		230,000,000

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	12	Oct 1992
Open to Navigation		Oct 1992

PHYSICAL DATA:

Lock: One, 600 feet x 110 feet

	General Appropriation	Inland Waterways Trust Fund	Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1989	7,657,000	7,657,000	
Conference Allowance For FY 1990	32,500,000	32,500,000	
Allocation For FY 1990	28,100,000 1/	28,100,000 1/	
Allocations Through FY 1990	35,757,000	35,757,000	31
Allocation Requested For FY 1991	37,500,000	37,500,000	64
Scheduled Balance to Complete After FY 1991	41,743,000	41,743,000	
Unscheduled Balance to Complete After FY 1991	0	0	

1/ Reflects reduction of $6,270,000 assigned as Savings and Slippage, $668,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $1,862,000 reprogrammed from the project (General Appropriation & Inland Waterway Trust Fund).

JUSTIFICATION: Melvin Price Lock and Dam is strategic to the movement of commodities on the Mississippi and Illinois Rivers. Any disruption of the single-lock operation will bring shipping to a halt. The second lock will be capable of keeping traffic moving and minimizing delays that could result during routine maintenance or as a result of unexpected emergencies that could occur in the main lock. In addition, the second lock will increase the capacity to pass traffic on the rivers. The average annual benefits, all navigation, are $130,368,000 based on 1 October 1980 prices.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue: Second Lock	$69,900,000
As Built Drawings	200,000
Value Engineering	100,000
Engineering and Design	800,000
Supervision and Administration	4,000,000
TOTAL	$75,000,000

NON-FEDERAL COST: One half of the total cost of this project is funded from the Inland Waterway tax revenues. These tax revenues are considered as non-federal contributions.

STATUS OF LOCAL COOPERATION: None required.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (Corps of Engineers) cost estimate of $115,000,000 is a decrease of $2,500,000 from the latest estimate ($117,500,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$- 3,480,000
Post Contract Award and Other Estimating Adjustments	+ 980,000
Total	$- 2,500,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement (EIS) was filed with the Environmental Protection Agency and distributed for public review on July 22, 1988. Many reviewers of the EIS expressed concern over completion of a Final EIS and construction and operation of the second lock without full disclosure of the impacts including mitigation. The Corps of Engineers, in coordination with the U.S. Environmental Protection Agency (USEPA), the U.S. Fish and Wildlife Service (USFWS), and the five states bordering the Upper Mississippi River, initiated the development of a Plan of Study (POS) to address the navigation-induced impacts associated with the second lock. A draft POS is substantially complete with submission of the final report scheduled for third quarter of FY 1990.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1985. In accordance with the cost sharing and financing concepts reflected in Water Resources Development Act of 1986, one-half of the total cost for construction of navigation lock and dam projects will be paid by funds appropriated from the Inland Waterways Trust Fund.

In accordance with Public Law 97-118, dated 29 December 1981, the project name has changed from Lock and Dam 26, Second Lock to Melvin Price Lock and Dam, Second Lock.

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Mississippi River-Gulf Outlet, Louisiana (Continuing)

LOCATION: The project is located in the southeastern portion of Louisiana, east of the Mississippi River. It is a deep draft seaway canal extending for approximately 76 miles in a southeasterly direction from the city of New Orleans to the Gulf of Mexico.

DESCRIPTION: The plan of improvement consists of four basic items: (1) a completed channel extending from the Inner Harbor Navigation Canal (IHNC) to the minus 38-foot contour in the Gulf of Mexico; (2) completed jetties and dikes along the channel in Breton Sound; (3) a new lock with connecting channels is unscheduled pending a decision to initiate construction; however, planning for the shiplock is continuing; and (4) foreshore protection along the north and south side of the ship channel extending from the IHNC to the end of the hurricane protection levee. Completion of remaining foreshore protection along the MRGO is unscheduled until need arises. A supplement to the General Design Memorandum will be prepared to address bank erosion.

AUTHORIZATION: River and Harbor Act of 1956, Water Resources Development Act of 1976, and the Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 2.6 to 1 at 2-5/8 percent.

TOTAL BENEFIT - COST RATIO: 4.1 to 1 at 2-5/8 percent.

INITIAL BENEFIT - COST RATIO: 1.6 to 1 at 2-5/8 percent (FY 1961).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available draft evaluation submitted in April 1982 at 1981 price levels.

SUMMARIZED FINANCIAL DATA

				Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost (Corps of Engineers)			$523,000,000	
Scheduled Construction		$101,384,000		
Unscheduled Construction		421,616,000		
Estimated Federal Cost (U.S. Coast Guard)			45,000	
Scheduled Construction		0		
Unscheduled Construction		45,000		
Estimated Non-Federal Cost			$285,900,000	
Scheduled Construction		$8,811,000		
Cash Contributions	0			
Other Cost	$8,811,000			
Unscheduled Construction		277,089,000		
Cash Contributions	0			
Other Cost	277,089,000			
Total Estimated Scheduled Construction Cost			110,195,000	
Total Estimated Unscheduled Construction Cost			698,750,000	
Total Estimated Project Cost			808,945,000	
Allocations to 30 September 1989			91,169,000	
Conference Allowance for FY 1990			1,270,000	
Allocation for FY 1990			1,094,000 3/	
Allocations through FY 1990			92,263,000	18
Allocation Requested for FY 1991			1,157,000	18
Scheduled Balance to Complete after FY 1991			7,964,000	
Unscheduled Balance to complete after FY 1991			$421,616,000	

STATUS (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
MRGO Unit	90	Indefinite 1/
Shiplock Unit	0	Indefinite 2/
Entire Project	75	Indefinite

1/ Completion of foreshore protection is postponed indefinitely until need arises.

2/ Completion of the shiplock element is indefinite pending a decision to initiate construction (see other information paragraph).

3/ Reflects reduction of $123,000 assigned as savings and slippage, $13,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $40,000 reprogrammed from the project.

PHYSICAL DATA

Channels:
Channel, 36 feet deep by 500 feet wide from Inner Harbor Navigation Canal to Chandeleur Islands; 66 miles
Channel, 36 feet deep by 500 feet wide from Mississippi River to the Gulf Outlet
Eased Entrance Channel widens gradually from 500 feet at Chandeleur Islands to 600 feet at the 38 foot contour in the Gulf of Mexico; 9.38 miles
Turning Basin, vicinity of IHNC
Locks:
New Lock, 110 feet wide by 40 feet deep by 1,200 feet long
Levees and Floodwalls: Foreshore Protection - 23.0 miles
Levees - 6.0 miles

Relocations:	$328,000
Roads (Completed)	
High Level Bridge, Louisiana Highway No. 47 (Paris Road Bridge)(Completed)	$12,260,000
Semi-High Level Bridge, St. Claude Avenue	$70,200,000
Semi-High Level Bridge, Claiborne Avenue	$78,300,000
Florida Avenue Vehicular and Railroad Bridge and Detour Route	$121,500,000
Dikes in Breton Sound:	
Northeast Retention Dike to Mile 20.2	
Southwest Retention Dike to Mile 14.8	

JUSTIFICATION: New Orleans is the gateway to the great system of inland waterways of the central valley of the nation. Adequate outlets to the Gulf of Mexico are essential to provide economical transportation to this area. The project provides an additional outlet to the Gulf that is shorter than the Mississippi River route and one which is not subject to as large stage fluctuations as is the river. The improvement provides a tidewater outlet and harbor sufficiently spacious for dispersion of docks and cargo-handling facilities, permitting flexible operations of the inland and seagoing commerce which is utilizing the river, the tidewater canal, and the Gulf Intracoastal Waterway. The project provides savings in sailing time and ship turnaround time, reduction in navigation hazards, and relief from congestion.

The existing IHNC Lock passes barge traffic between the Mississippi River and the Gulf Intracoastal Waterway at New Orleans and is a vital link in the Gulf Intracoastal Waterway system. The lock is also the connecting link for ship traffic between the Mississippi River-Gulf Outlet and the Mississippi River at New Orleans. The existing lock has a maximum practical capacity for barge traffic of approximately 30,000,000 tons. The number of ships locked from 1970 through 1988 averaged about 211 per year. This is a reduction in ship lockages since 1961, and is due in part to the development of the Mississippi River-Gulf Outlet channel and also the inadequacy of the IHNC Lock for ship traffic. Studies indicate that, with a new lock, barge traffic would generally be expected to increase to about 45,000,000 tons by 2035 and that the number of ship lockages by 2035 would be approximately 1,800. The average annual benefits are as follows:

Annual Benefits	Amount
Navigation	$ 98,760,000
Vehicular	21,000,000
Advanced Replacement of Bridges	3,200,000
Savings to Existing Project	1,700,000
Total Annual Benefits	$124,660,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Engineering and Design for MRGO Unit	$ 96,000
Supervision and Administration for MRGO Unit	14,000
Subtotal MRGO Unit	$ 110,000
Engineering and Design for Shiplock Unit	$ 800,000
Supervision and Administration for Shiplock Unit	247,000
Subtotal Shiplock Unit	$1,047,000
TOTAL PROJECT	$1,157,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986 (PL 99-662), the non-Federal sponsor must comply with the following requirements. However, an apportionment of cost between general navigation and inland navigation is being deferred pending resolution of the lock location and determination by the Assistant Secretary of the Army, Civil Works, of use patterns in accordance with Public Law 99-662.

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
MRGO		
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$ 8,811,000	$65,000
SHIPLOCK		
Provide lands, easements, rights-of-way, and dredged material disposal areas.	42,000,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	235,089,000	
TOTAL NON-FEDERAL COSTS	$285,900,000 1/	$65,000

The non-Federal sponsor has agreed to make all required payments concurrently with project construction.

1/ This project will be cost shared in accordance with the provisions of Section 844 of the Water Resources Development Act of 1986 (PL 99-662).

STATUS OF LOCAL COOPERATION: Assurances of local cooperation furnished by the Board of Commissioners of the Port of New Orleans were accepted on behalf of the United States on 29 August 1957. The Board of Commissioners executed amended assurances covering the provisions of the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970, (PL 91-646), which were accepted on behalf of the United States on 21 April 1975. Supplemental assurances reflecting the changes made necessary by enactment of the Water Resources Development Act of 1976 were requested on 11 September 1978. By letter of 18 September 1978, local interests stated that they could not respond to our requests because plans for the lock at the IHNC site were in a very preliminary stage. In November 1983, the Board of Commissioners was informed of the selected plan and its costs, including their share, based on traditional cost sharing. By letter of 17 February 1984, the Board stated that it could not support the plan at that time because of the uncertainty of cost sharing and the financial situation of the State of Louisiana. However, by letter dated 11 February 1985, the Governor of Louisiana provided the necessary assurances to proceed with the coordination of an appropriate course of action for public involvement and to process the Evaluation Report. The public involvement program will be initiated consistent with the Evaluation Report schedule. See Other Information paragraph regarding the schedule for the Evaluation Report.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $523,000,000 is an increase of $6,000,000 from latest estimate ($517,000,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$6,027,000
Post Contract Award and Other Estimating Adjustments	-27,000
Total	$6,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 14 May 1976 and published in the Federal Register on 21 May 1976. A separate statement is being prepared for the new ship lock; the draft statement is scheduled for submission to the EPA in August 1990, and the final statement is scheduled to be submitted to EPA in February 1991.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1957 and funds to initiate construction were appropriated in FY 1958.

The existing lock was completed in 1923, by non-Federal interests and had been leased by the Federal Government since 1944. On 1 July 1986, the lock, adjacent land, and facilities were purchased from the Board of Commissioners of the Port of New Orleans for $3,800,000. By purchasing the lock, the Corps received fee title to the lock and appurtenances with operation and maintenance responsibility for the St. Claude and Florida Avenue bridges transferring to the Board of Commissioners of the Port of New Orleans.

President Carter, as a result of the review of water resource projects in April 1977, recommended that the site for the proposed shiplock be changed from the recommended lower site in St. Bernard Parish to the IHNC in Orleans Parish and that further study be conducted to determine whether repair or replacement is needed of the existing lock at the existing site. It was further recommended that, if replacement and expansion are deemed necessary, special care should be taken to minimize dislocation and disruption of residents near the site. A draft Evaluation Report documenting the Phase I studies including the tentatively selected plan (40 by 110 by 1200 foot lock located adjacent to and on the east side of the existing lock) was submitted for review in April 1982. The State of Louisiana, in a letter dated 11 February 1985, indicated its intent to provide the assurances of local cooperation, contingent upon the availability of funds and the state's priorities at the time such formal assurances are required. Subsequent to the completion of the draft Evaluation Report, the traffic base and the transportation rate study became obsolete and the methodology for the computation of the deep draft navigation benefits was refined. As a result, the benefit analysis must be revised. The Evaluation Report is scheduled for completion in January 1991. In response to the initiation of the Evaluation Study, the St. Bernard Parish Police Jury, on 10 April 1987, passed a resolution opposing the siting of the new lock in St. Bernard Parish. On

30 August 1988, state elected officials representing the Lower Ninth Ward expressed opposition to the lock at the IHNC site. On 18 April 1989, the St. Bernard Parish Police Jury passed a resolution strongly and unanimously opposing a new lock and connecting channel at Violet in St. Bernard Parish.

Under the Water Resources Development Act of 1986 (PL 99-662), Section 844, the cost sharing of the lock feature has been changed. The cost of the lock shall be allocated between shallow and deep draft. The shallow draft cost will be funded 50% from the Inland Waterway Trust Fund and 50% from the general fund of the U.S. Treasury. The deep draft cost will be shared 75% Federal and 25% non-Federal up to 45 feet and 50% Federal and 50% non-Federal for anything deeper. The Act also specifies that a replacement lock would be constructed in the area of the existing site or at the Violet site and that use of minorities would be maximized for any such replacements.

APPROPRIATION TITLE: Construction General - Channels and Harbors (Navigation)

PROJECT: Mississippi River Ship Channel, Gulf to Baton Rouge, Louisiana (Continuing)

LOCATION: The project is located in the southeast portion of Louisiana below Baton Rouge, Louisiana, consisting of the Mississippi River and its major outlet to the Gulf, Southwest Pass.

DESCRIPTION: The authorized project will provide more efficient deep-draft navigation access to the New Orleans and Baton Rouge reaches of the Mississippi River via Southwest Pass by enlarging the existing channel to a project depth of 55 feet and enlarging the adjacent channel along the left descending bank in New Orleans to a 40-foot depth, a turning basin at Baton Rouge, and training works in the passes to reduce maintenance. Construction of mitigation measures will be required due to the saltwater intrusion caused by the deeper channel. The scheduled work includes enlargement of the existing channel to an initial depth of 45 feet in the reach from the Gulf of Mexico to Mile 230 above New Orleans, the 40-foot enlargement in New Orleans Harbor, construction of the mitigation works and the construction of training works at Red Eye crossing, (Mile 222 A.H.P). The unscheduled work includes enlargement of the 45-foot channel to 55 feet in the reach from the Gulf of Mexico to Mile 230, enlargement of the existing 40-foot channel to 55 feet from Mile 230 to Mile 233, a turning basin at Baton Rouge, and training works in the passes.

AUTHORIZATION: Supplemental Appropriation Act of FY 1985 and Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 5.2 to 1 at 8-1/8 percent.

TOTAL BENEFIT - COST RATIO: 8.7 to 1 at 8-1/8 percent.

INITIAL BENEFIT - COST RATIO: 8.1 to 1 at 8-1/8 percent (FY 1985).

BASIS OF BENEFIT - COST RATIO: Benefits are from latest available evaluation approved in July 1989 at 1980 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Appropriation Requirement (Corps of Engineers)		$148,000,000
Scheduled Construction	$ 44,033,000	
Unscheduled Construction	103,967,000	
Estimated Appropriation Requirement (US Coast Guard)		$ 1,200,000
Scheduled Construction	0	
Unscheduled Construction	1,200,000	

STATUS (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Phase I (Gulf-Mile 181, 45')	89	Sept 92
Phase II (Mile 181-Baton Rouge, 45')	0	Sept 94
Phase III (Gulf-Baton Rouge, 55')	0	Indefinite
Entire Project	26	Indefinite

Lower Mississippi Valley Division

New Orleans District

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Mississippi River Ship Channel, Gulf to Baton Rouge, Louisiana

					Accum. Pct. of Est. Fed. Cost.
Estimated Total Appropriation Requirement				149,200,000	
Scheduled Construction			44,033,000		
Unscheduled Construction			105,167,000		
Future Non-Federal Reimbursement				1,250,000	
Scheduled Construction			1,250,000		
Unscheduled Construction			0		
Estimated Federal Cost (Ultimate)				147,950,000	
Scheduled Construction			42,783,000		
Unscheduled Construction			105,167,000		
Estimated Non-Federal Cost				348,250,000	
Scheduled Construction			27,397,000		
Cash Contributions		14,677,000			
Other Costs		11,470,000			
Reimbursements		1,250,000			
Navigation	1,250,000				
Unscheduled Construction			320,853,000		
Cash Contributions		103,323,000			
Other Costs		217,530,000			
Reimbursements		0			
Navigation	0				
Total Estimated Scheduled Construction Cost				70,180,000	
Total Estimated Unscheduled Construction Cost				426,020,000	
Total Estimated Project Cost				496,200,000	
Allocations to 30 September 1989				8,837,000	
Conference Allowance for FY 1990				3,000,000	
Allocation for FY 1990				2,594,000 1/	
Allocations through FY 1990				11,431,000	8
Allocation Requested for FY 1991				5,500,000	12
Scheduled Balance to Complete after FY 1991				27,102,000	
Unscheduled Balance to Complete after FY 1991				$103,967,000	

1/ Reflects reduction of $289,000 assigned as savings and slippage, $31,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $86,000 reprogrammed from the project.

PHYSICAL DATA

Channels and Canals:
Southwest Pass: 55 feet deep (Mean Low Gulf) by 750 feet wide, 17.5 miles.
Southwest Pass Bar Channel: 55 feet deep (Mean Low Gulf) by 600 feet wide from Mile 18.0 below Head of Passes to the -55 feet (Mean Low Gulf) contour in the Gulf of Mexico (Mile 22.1 below Head of Passes)

Mississippi River: 55 feet deep (Mean Low Gulf) by 750 feet wide, 233 miles long.
Baton Rouge Turning Basin: 55 feet deep (Mean Low Gulf) by 1,600 feet wide, 4,000 feet long.

Breakwaters and Seawalls:
Control and contraction structures in South Pass, Pass a Loutre, and Red Eye Crossing (Mile 222 A.H.P.). Size and number of structures to be determined after future planning.

Mitigation Measures:
Underwater dredged material sill at Mile 64 Above Head of Passes (top elevation -55.0 Mean Low Gulf), and a pumping station with raw water supply pipelines to East and West Pointe a la Hache and a Boothville treatment plant. Until construction of a permanent mitigation plan has been completed, an interim plan has been implemented to barge fresh raw water, with Operations and Maintenance, General funds, to three existing water treatment plants during periods of increased salinity caused by the deeper channel. (See Other Information).

JUSTIFICATION: Restrictions imposed by the dimensions of the existing deep-draft approaches to the ports of New Orleans and Baton Rouge, together with the projected increase in commerce through these ports, prevent the effective utilization of the ports by an increasing percentage of ships that cannot navigate those approaches fully loaded. The ports of New Orleans and Baton Rouge are the number one and number five ports in the United States, respectively, according to latest data, based on the total tonnage of waterborne commerce. Much of this commerce is in liquid bulk and dry bulk oceangoing cargo which could be shipped much more economically if a deeper channel was available. The cargo was previously shipped in smaller ships or in lightly loaded larger ships over the 40-foot deep channel. The provision of a deeper channel would result in significant savings in the transportation cost of the oceangoing commerce moving over the channel. The average annual benefits, all navigation, are $1,292,000,000, based on 1 October 1980 prices.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue:	
Permanent Saltwater Intrusion Mitigation Facilities	$4,900,000
Engineering and Design - Phase I	200,000
Supervision and Administration - Phase I	200,000
Subtotal - Phase I	5,300,000
Engineering and Design - Phase II	125,000
Supervision and Administration - Phase II	75,000
Subtotal - Phase II	200,000
Total Project	5,500,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance and Replacement Costs
Phase I, 45', Gulf - Mile 181.0		
Modify or relocate pipelines and submarine cables where necessary for the construction of the project.	$ 6,795,000	
Dredge New Orleans Harbor.	784,000	
Bear 25% of costs to construct the channel to 45' (cash contributions and/or equivalent work).	7,856,000	
Pay maintenance dredging costs adjacent to New Orleans harbor wharves.		$1,137,000
Pay an additional 10 percent of the cost allocated to deep draft navigation within a period of 30 years following completion of construction [which is partially offset by a credit allowed for the value of lands, easements, rights-of-way, relocations and dredged material disposal areas].	467,000	
Subtotal, Phase I	$15,902,000	$1,137,000

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance and Replacement Costs
Phase II, 45', Mile 181 - Baton Rouge		
Modify or relocate pipelines and submarine cables where necessary for the construction of the project.	$ 3,891,000	
Bear 25% of costs to construct the channel to 45'. (cash contributions and/or equivalent work).	6,821,000	
Pay an additional 10 percent of the cost allocated to deep draft navigation within a period of 30 years following completion of construction [which is partially offset by a credit allowed for the value of lands, easements, rights-of-way, relocations and dredged material disposal areas].	783,000	
Subtotal, Phase II	$11,495,000	
Phase III, 55', Gulf - Baton Rouge		
Provide lands, easements, rights-of-way and dredged material disposal areas.	$ 400,000	
Modify or relocate pipelines and submarine cables where necessary for the construction of the project.	217,130,000	
Bear 25% of costs to construct the channel to 45' (cash contributions and/or equivalent work).	533,000	
Bear 50% of costs to construct the channel from 45' to 55' (cash contributions and/or equivalent work).	102,790,000	
Pay 50% of maintenance dredging costs between 45' and 55'.		$40,717,000
Subtotal, Phase III	$320,853,000	$40,717,000
Total Non-Federal Costs	$348,250,000	$41,854,000

The non-Federal sponsor has agreed to make all payments of first costs (excluding the reimbursement) concurrently with project construction and to pay an additional 10 percent reimbursement of the costs allocated to deep draft navigation within a period of 30 years following completion of construction, (which is partially offset by a credit allowed for the value of lands, easements, rights of way, relocations and dredged material disposal areas).

STATUS OF LOCAL COOPERATION: On 13 September 1985, the Governor of the State of Louisiana, designated the Louisiana Department of Economic Development, formerly the Department of Commerce, as the local sponsor for the project. A Local Cooperation Agreement for a 45-foot channel from the Gulf of Mexico to Mile 181 Above Head of Passes was signed on 30 June 1986. A supplement to the Local Cooperation Agreement reflecting the Water Resources Development Act of 1986 cost-sharing provisions was signed on 15 June 1987. The State of Louisiana has requested that we proceed with the construction of the 45-foot channel from Mile 181 to Mile 230. We have entered negotiations for the Local Cooperation Agreement for this reach.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $148,000,000 is an increase of $11,000,000 from the latest estimate ($137,000,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Post Contract Award and Other Estimating Adjustments	$ 67,000
Price Escalation on Construction Features	2,682,000
Design Changes	8,251,000
Total	$ 11,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on 2 July 1982. A Supplemental Information Report to this final Environmental Impact Statement addressing the prototype dredging of Fairview Crossing was filed with the Environmental Protection Agency in July 1983. A similar report addressing construction of a prototype saltwater intrusion sill was filed with the Environmental Protection Agency in September 1983. Two Supplemental Information Reports documenting additional studies of the Venice, Louisiana to the Gulf of Mexico reach and the underwater dredged material sill at Mile 64 above Head of Passes, to mitigate for increased saltwater intrusion, were filed with the Environmental Protection Agency on 28 November 1986. An Environmental Assessment/Finding of No Significant Impact for the Venice, Louisiana to Mile 181 above Head of Passes reach, was filed with the Environmental Protection Agency on 18 December 1987. Another Environmental Assessment/Finding of No Significant Impact addressing the interim saltwater mitigation plan and revised marsh creation quantities was filed with the Environmental Protection Agency on 22 April 1987.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1982, and funds to initiate construction were appropriated in FY 1985.

Dredging of the 45-foot channel south of New Orleans to the Gulf of Mexico was completed on 1 December 1987. The 45-foot channel from New Orleans to Mile 181 Above Head of Passes was completed on 17 December 1988.

As a result of the severe drought conditions in the midwest part of the country during the summer of 1988, saltwater intrusion mitigation measures for the 45-foot channel were implemented on 30 June 1988, with construction of an underwater dredged material sill in the Mississippi River at Mile 63.7 Above Head of Passes, which was completed to an elevation of -45.0 feet NGVD on 1 August 1988.

The other part of the mitigation plan was to barge fresh water to the three municipal water treatment plants at Boothville and at East and West Pointe-a-la-Hache, Louisiana, downstream of the sill. Approximately 101 million gallons of water vwas barged, commencing on 14 July 1988 and continuing through 2 December 1988. Operations and Maintenance General funds were used for both the barging operation and sill construction. The intrusion event was dealt with effectively, and both the sill and the barging of freshwater to Lower Plaquemines Parish were demonstrated to be practicable.

We are prepared to award contracts for the construction of the sill and the barging of water during the current low water season in 1989; however, this has not been required at this time. We are still negotiating with the locals for the permanent mitigation measures.

APPROPRIATION TITLE: Construction General - Locks and Dams (Navigation)

PROJECT: Red River Waterway - Mississippi River to Shreveport, LA (Continuing)

LOCATION: The project is located in central and northwest Louisiana and will provide a navigation route from the Mississippi River at its juncture with Old River via Old and Red Rivers to Shreveport, LA.

DESCRIPTION: The project provides for a 9- by 200-foot navigation channel extending about 236 miles from the Mississippi River through Old River and Red River to the vicinity of Shreveport. Five locks with dimensions of 84 by 685 by 14 feet and adjacent dams will provide a lift of about 141 feet. The project also provides for realigning the banks by means of dredging, cutoffs, and training works and for stabilizing its banks by means of revetments, dikes, and other methods. Recreation facilities and fish and wildlife development are also an integral part of the project.

AUTHORIZATION: River and Harbor Act of 1968 and Water Resources Development Act of 1976, as modified by the Supplemental Appropriations Act of 1984, and the Water Resources Development Act of 1986 as modified by the Water Resources Development Act of 1988 and Energy and Water Development Appropriations Act, 1990.

REMAINING BENEFIT - REMAINING COST RATIO: 2.0 to 1 at 3-1/4 percent.

TOTAL BENEFIT-COST RATIO: 1.3 to 1 at 3-1/4 percent.

INITIAL BENEFIT-COST RATIO: 1.2 to 1 at 3-1/4 percent (FY 1973).

BASIS OF BENEFIT-COST RATIO: Benefits and costs are from the General Reevaluation Report and Final Supplement No. 2 to the Environmental Impact Statement dated August 1983 at 1982 price levels.

SUMMARIZED FINANCIAL DATA

				Accum. Pct. of Est. Fed. Cost
Estimated Apprn Requirement (Corps)			$1,724,000,000	
Scheduled Construction		$1,257,170,000		
Unscheduled Construction		466,830,000		
Estimated Apprn Requirement (U. S. Coast Guard)			317,000	
Scheduled Construction		0		
Unscheduled Construction		317,000		
Estimated Total Apprn Requirement			1,724,317,000	
Scheduled Construction		1,257,170,000		
Unscheduled Construction		467,147,000		
Estimated Non-Federal Cost			$ 87,772,000	
Scheduled Construction		$32,785,000		
Cash Contribution	$10,363,000			
Other Costs	22,422,000			
Unscheduled Construction		54,987,000		
Cash Contribution	33,878,000			
Other Costs	21,109,000			
Total Estimated Scheduled Construction Cost			1,289,955,000	
Total Estimated Unscheduled Construction Cost			522,134,000	
Total Estimated Project Cost			1,812,089,000 1/	
Allocations to 30 September 1989			1,001,053,000	
Conference Allowance for FY 1990			101,800,000	
Allocations for FY 1990			100,375,000 2/	
Allocations through FY 1990			1,101,428,000 1/	64
Allocation Requested for FY 1991			39,147,000	66
Scheduled Balance to Complete After FY 1991			116,595,000	
Unscheduled Balance to Complete After FY 1991			466,830,000	

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	57	Unscheduled
Open to 9-Foot Navigation		
Lock and Dam No. 1		Dec 1987
John H. Overton Lock and Dam		Dec 1987
Lock and Dam No. 3		Oct 1991
Lock and Dam No. 4		Unscheduled
Lock and Dam No. 5		Unscheduled

1/ Includes $26,654,000 for Overton-Red River Waterway and $21,653,000 for Red River Emergency Bank Protection for construction work.

2/ Reflects reduction of $1,425,000 sequestered in accordance with the Gramm-Rudman-Hollings Act.

29 JAN 1990

PHYSICAL DATA

Lands and Damages: 14,000 acres,
mitigation of wildlife losses above mile 104
Channels and Canals:
Channel 9 feet deep, 200 feet wide, and 236 miles long from Old River to Shreveport, LA
Total length of bank protection - 273 miles

Locks: Number - 5; Size - 84 feet by 685 feet
Dams: Number - 5; Type - Tainter Gated
Relocations: Roads (Modify one bridge)
Railroads (Replace one and modify one bridge)

JUSTIFICATION: In its present state, the Red River is a very erratic river subject to wide fluctuations in stage and meandering because of the erodible soils. For navigation to be a reality on Red River, a system of dependable pools and a properly aligned channel are necessary. The pools will be provided by locks and dams and the proper alignment will be provided by bank and channel stabilization works. These works also would preserve lands and improvements along the navigation route. With the present open river conditions, the controlling depths for navigation from January to July are 9 feet from the Mississippi River to the mouth of the Black River, 6 feet from the mouth of the Black River to Alexandria, LA, and 5 feet to Shreveport, LA. During the remainder of the year, controlling depths are generally about 9 feet from the Mississippi River to the mouth of the Black River, about 4 feet from there to Alexandria, and 1 to 2 feet to Shreveport.

Navigation from the Mississippi River to Shreveport will provide an artery for low-cost transportation which will stimulate economic growth of the region. Estimated savings are based on an average annual movement of 7,845,000 tons. Commodities to be carried over the waterway include iron and steel products and pipe, industrial chemicals, paper and allied paper products, petroleum and petroleum products, other metals and ores, sulphur, agricultural chemicals, and grain. The public will realize an estimated average annual savings of $68,831,000 which will result from reduced transportation costs. The project is credited with benefits derived from transportation savings from use of the waterway, flood control, damages prevented by bank stabilization, security against levee crevasses, fish and wildlife, recreation, area redevelopment, reduced maintenance on existing revetments, reduced sedimentation, irrigation, reduced costs of municipal and industrial water supply, and reduced pumping costs. The average annual benefits are as follows:

Annual Benefits	Amount
Navigation	$ 68,831,000
Flood Control	2,037,000
Bank Stabilization	16,602,000
Fish and Wildlife	460,000
Recreation	4,435,000
Area Redevelopment	14,808,000
Other:	
Irrigation and reduced costs of municipal and industrial water supply	53,000
Total Annual Benefits	$107,226,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Pool 1	
Complete:	
Ben Routh Rec Fac	$ 290,000
Lock and Dam 1 Ph. I, Pt. II Rec Fac	37,000
Engineering and Design	3,000
Supervision and Administration	46,000
Subtotal Pool 1	$ 376,000
Pool 2	
Initiate and Complete:	
Cotton ACS	$ 2,800,000
Initiate:	
Initial Dredging Above Alexandria	300,000
Pool 2 (Cont)	
Continue:	
LA & AR Railroad Bridge	$ 4,550,000
LA & AR Railroad Utilities	910,000
Missouri-Pacific Railroad Bridge Modification	6,826,000
Alexandria Rec Fac	246,000
Complete:	
Boyce Cutoff, Ph. I Rec Fac	116,000
LA & AR Railroad Lands	455,000
Miscellaneous Hired Labor	4,000
Engineering and Design	67,000
Supervision and Administration	936,000
Subtotal Pool 2	$17,210,000

Pool 3	
Initiate:	
Levee Modifications	$ 500,000
Continue:	
Lock and Dam 3, Ph. III	13,442,000
Complete:	
Clarence Closure	109,000
Cent. Maint Propul Units	53,000
Bourbeaux-Tyrouge Capout	130,000
Miscellaneous Hired Labor	467,000
Engineering and Design	838,000
Supervision and Administration	462,000
Subtotal Pool 3	$16,001,000

Pool 4	
Engineering and Design	$ 1,724,000
Supervision and Administration	172,000
Subtotal Pool 4	$ 1,896,000
Pool 5	
Engineering and Design	3,309,000
Supervision and Administration	355,000
Subtotal Pool 5	$ 3,664,000
GRAND TOTAL	$39,147,000

NON-FEDERAL COST: Local interests are required to provide all lands, easements, and rights-of-way, including a proportionate share of the cost of the bridge relocations over existing channels in accordance with the principles of Section 6 of the Bridge Alteration Act (Truman-Hobbs) of 21 June 1940, as amended by the Act of 16 July 1952, 25 percent of the cost of necessary retaining dikes for dredged materials and 50 percent of the total cost of recreation facilities. Non-Federal costs associated with the total project are broken down as follows. The non- Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas	$34,431,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project	9,898,000	$ 207,100
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, and replacement of recreation facilities	41,248,000	1,416,800
Pay 6 percent of the first costs allocated to fish and wildlife and pay 6 percent of the costs of operation, maintenance, and replacement of fish and wildlife facilities	0 1/	35,500
Pay 25 percent of the first cost allocated to retention dikes required for construction and maintenance dredging	2,195,000	30,500
Replacement costs		296,400
Total Non-Federal Costs	$87,772,000	$1,986,300

1/ Since the local sponsor will assume all operation and maintenance costs and this cost will exceed the 6 percent local share, there will be no local requirement toward implementation costs.

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction. Non-Federal cost associated with the scheduled portion of the project are broken down as follows:

Lands and Damages	$16,140,000
Utility Relocations	6,282,000
Cash Contribution:	10,363,000
Recreation Facilities	(7,906,000)
Bridge Relocations	(666,000)
Retaining Dikes	(1,791,000)
Total	$32,785,000

Local interests are also required to operate and maintain recreation facilities and bridges, and to contribute 25 percent of the construction cost of dikes required for maintenance dredging at an estimated annual cost of $1,950,800 which includes $296,400 for replacements.

STATUS OF LOCAL COOPERATION: Formal assurances of local cooperation were furnished by the Red River Waterway Commission on 26 February 1969 and accepted on behalf of the United States on 15 April 1969. That agency was formed expressly to provide the local cooperation required for the project and has levied a 2-mill assessment to fulfill its obligations. Amended assurances covering the provisions of the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, and the specific written agreement requirements of Section 221 of the Flood Control Act of 1970, Public Law 91-611, were executed by the Red River Waterway Commission on 23 May 1973 and were accepted on behalf of the United States on 14 November 1973. A cost sharing agreement covering nine recreation sites in Pools 1 and 2 was approved by the Deputy Chief of Engineers on 23 July 1985. A Memorandum of Understanding between the Corps and the local sponsor for development of these nine sites was executed in January 1986. A final draft contract between the Federal Government and the State of Louisiana for cost-shared recreation development in Pools 3, 4, and 5 is being processed. The Red River Waterway Commission agreed by letter dated 6 September 1983 to fulfill all responsibilities of the local sponsor relative to the purchase of wildlife mitigation lands. The Louisiana Department of Wildlife and Fisheries, by letter dated 22 July 1983, agreed to assume operation and maintenance responsibilities for acquired wildlife mitigation lands. Preparation has been initiated of a real estate design memorandum and a Local Cooperation Agreement between the Federal Government and the State of Louisiana for the acquisition of up to 5,000 acres of mitigation lands in the vicinity of Stumpy Lake/Swan Lake/Loggy Bayou Wildlife Management Area at a cost not to exceed $2,500,000, in accordance with the Energy and Water Development Appropriation Act, 1990. A supplement to the Chief of Engineers Mitigation report, demonstrating compliance with the Administration's policies on mitigation is nearing completion.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $1,724,000,000 is an increase of $64,000,000 from the latest estimate ($1,660,000,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$+41,788,000
Post Contract Award and Other Estimating Adjustments	+22,212,000
Total	$+64,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final statement was filed with CEQ on 11 May 1973. The Environmental Impact Statement is included in the project "Red River Waterway." Supplement No. 1 to the Environmental Impact Statement was prepared for the Mississippi River to Shreveport reach of the Red River Waterway due to a change in project alignment from the authorizing document, and to include updated environmental information due to a reanalysis and to include results of the ground-water studies. The final Supplement No. 1 was filed with CEQ on 18 February 1977, and published in the Federal Register on 25 February 1977. A third Environmental Impact Statement (Supplement No. 2) was submitted to the Environmental Protection Agency in final form on 10 November 1983, and the record of decision was signed by the Division Engineer on 4 January 1984. This supplement was necessary to document the expanding base of data and design information being developed and accompanied the General Reevaluation Report.

An Environmental Assessment was prepared for Pool No. 2 to present the results of investigations of the impacts of the 58- and 64-foot elevations. The Environmental Assessment resulted in a Finding of No Significant Impact which allowed a design change from 58- to 64-foot pool elevations. Following review by the public, the Finding of No Significant Impact was signed on 21 April 1982.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1971 and allotted in Fiscal Year 1972. Funds to initiate construction were appropriated in Fiscal Year 1973.

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Mississippi River Between the Ohio and Missouri Rivers (Regulating Works) (Continuing)

LOCATION: The project involves improvement of the Mississippi River from the mouth of the Ohio River to the mouth of the Missouri River at mile 195 above the mouth of the Ohio River.

DESCRIPTION: The project consists of a navigation channel 9 feet deep and not less than 300 feet wide with additional width in bends, from the mouth of the Ohio River to the northern boundary of the City of St. Louis, a distance of approximately 191 miles, thence 200 feet wide, with additional width in bends, to the mouth of the Missouri River. It will be achieved by means of dikes, revetment, construction dredging, and rock removal. All work is scheduled.

AUTHORIZATION: River and Harbor Acts of 1910, 1927, and 1930.

REMAINING BENEFIT - REMAINING COST RATIO: 25.0 to 1 at 2.5 percent.

TOTAL BENEFIT - COST RATIO: 18.9 to 1 at 8 7/8 percent.

INITIAL BENEFIT - COST RATIO: 4.5 to 1 at 2.5 percent (FY 1961).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest evaluation in October 1974 at 1974 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$207,000,000
Scheduled Construction	0	
Unscheduled Construction	0	
Estimated Non-Federal Cost		0
Cash Contributions	0	
Other Costs	0	
Total Estimated Project Cost		207,000,000

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	77	March 2000

PHYSICAL DATA:

Channel: 195 miles

Ohio River to St. Louis	9 x 300 feet
St. Louis to Missouri River	9 x 200 feet

29 JAN 1990

			Accum Pct. of Est. Fed. Cost
Allocations to 30 September 1989	137,428,000		
Conference Allowance for FY 1990	6,300,000		
Allocation for FY 1990	9,055,000	1/	
Allocations through FY 1990	146,483,000		71
Allocation Requested for FY 1991	4,800,000		73
Scheduled Balance to Complete After FY 1991	55,717,000		
Unscheduled Balance to Complete after FY 1991	$ 0		

1/ Reflects reduction of $608,000 assigned as Savings and Slippage, $65,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $3,428,000 reprogrammed to the project.

JUSTIFICATION: The Mississippi River between the Ohio and Missouri Rivers is a major artery of the inland waterway system. Commerce in this reach has increased from 4,500,000 tons in 1945 to an estimated 118,000,000 tons in 1989 worth approximately 13 billion dollars. Commerce is expected to increase to 167,000,000 tons by the year 2020; therefore, it is essential that construction of project works be continued at a rate which will insure 9-foot channel depths for a year-round navigation season. The average annual benefits are as follows:

Annual Benefits	Amount
Navigation	$261,809,000
Regional Redevelopment	204,000
Total	$262,013,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate:	Dike -	
	Greenfield Bend, Phase 3	$ 477,000
Initiate & Complete:	Eliza Point Phase 3, mile 20-5	1,418,000
Continue:	Lands and Damages	10,000
Complete:	Dikes -	
	Ivory Landing, Phase 1, mile 184-154	985,000
	Grandtower, Phase 1, mile 90-67	676,000
	Dogtooth Bend, Phase 2, mile 40-20	260,000

Engineering and Design	649,000
Supervision and Administration	328,000
Total	$4,800,000

NON-FEDERAL COST: None required.

STATUS OF LOCAL COOPERATION: None required.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $207,000,000 is an increase of $4,000,000 from the latest estimate ($203,000,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 1,124,000
Post Contract Award and Other Estimating Adjustments	3,300,000 1/
Cost of Completed Work	- 424,000
Total	$ 4,000,000

1/ Primarily due to increased cost for rock removal.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 8 April 1976 and published in the Federal Register on 23 April 1976. An Environmental Analysis was completed for the Rock Removal and Finding of No Significant Impact signed on 28 October 1988.

OTHER INFORMATION: Planning was initiated prior to 1910; construction was initiated in 1910. The severe drought conditions of the summer/fall 1988 resulted in drastically reduced river flows. In addition, inflows from major streams, tributary to the Mississippi were also drastically reduced. Flood Control and Navigation releases from headwater reservoirs were continued until the last possible date, to provide maximum utilization of available river flows. Analysis of these factors, together with physical conditions of the river indicated a requirement to advance the schedule for removal of rock ledge obstructions, and rock pinnacles, in several sections of the river between St. Louis and Cairo, that would jeopardize the navigation channel. A rock removal contract was awarded in October 1988 and scheduled for completion in April 1990. This work will assist in maintaining the authorized navigation channel dimensions during extreme low water conditions. The low flows in late 1988 resulted in 7 feet of water in one area and extremely narrow channels in other areas effectively restricting navigation on the Mississippi River between Cairo and St. Louis.

APPROPRIATION TITLE: Construction, General - Local Protection - (Flood Control)

PROJECT: East St. Louis, Illinois (Continuing)

LOCATION: The project is located in St. Clair and Madison Counties, Illinois, along the left bank of the Mississippi River between river miles 175 and 195 above the Ohio River.

DESCRIPTION: The project consists of 11 segments of channel rehabilitation, repair and rehabilitation of 14 pump stations, 9 large gatewells, 21 small gravity drains, 19 closure structures, rehabilitation and replacement of 6 bridge structures, and rehabilitation of 3 control structures in the vicinity of East St. Louis, Illinois. All work is scheduled.

AUTHORIZATION: Energy and Water Development Appropriations Act of 1988 (PL 100-202).

REMAINING BENEFIT - REMAINING COST RATIO: 12.3 to 1 at 8 7/8 percent.

TOTAL BENEFIT-COST RATIO: 10.3 to 1 at 8 7/8 percent.

INITIAL BENEFIT - COST RATIO: 14.0 to 1 at 8 5/8 percent (FY 1988).

BASIS OF BENEFIT-COST RATIO: Based on update of information presented in Scope of Planning Report, May 1988 at Oct 89 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$31,965,000
Estimated Non-Federal Cost		10,655,000
Cash Contribu4ions	9,984,000	
Other Costs	671,000	
Total Estimated Project Cost		42,620,000

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	1	Sep 1995

PHYSICAL DATA	
Channels:	11 Segments
Pump Stations:	14
Bridges:	6
Control Structures	3
Gatewells	9
Gravity Drains	21
Closure Structures	19

		Accum % of Est Fed Cost
Allocations to 30 September 1989	$ 635,000	
Conference Allowance for FY 1990	3,500,000	
Allocation for FY 1990	3,026,000 1/	
Allocations through FY 1990	3,661,000	11
Allocation Requested for FY 1991	4,500,000	26
Scheduled Balance to Complete after FY 1991	23,804,000	
Unscheduled Balance to Complete after FY 1991	0	

1/ Reflects $338,000 reduction assigned as Savings and Slippage, $36,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $100,000 reprogrammed from the project.

JUSTIFICATION: The original project, authorized by the Flood Control Act of 1936, was to protect about 111 square miles of business, industrial and residential areas, including East St. Louis, Granite City, Madison, Venice, Brooklyn, Fairmount and Monsanto, Illinois, against floods up to a stage of 52 feet on the St. Louis guage. Completion funds for this project were appropriated in FY 1966, at a total estimated Federal cost of $23,550,000. A private Architect-Engineering firm report, dated September 1986, indicated that the project was in need of extensive repairs. These repairs were due to wear and tear and possible preventative maintenance that may have been deferred by local interest. The average annual benefits, all Flood Control, are $30,500,000 based on 1 October 1989 price levels.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate & Complete:	North Pump Station	$ 1,110,000
	Monsanto Pump Station	490,000
	Cahokia Pump Station	172,000
	South Pump Station	505,000
	Venice Pump Station	209,000
	Madison Pump Station	369,000
	Canal No. 1 Pump Station	182,000
	Phillips Beach Pump Station	29,000
	IR-8 Pumping Station	27,000
	Granite City Seepage Station	83,000
	IDOT Pumping Station	16,000
	E. St. Louis Pump Station	559,000
	Panel Closure Structure Rehabilitation	303,000
	Engineering and Design	222,000
	Supervision and Administration	224,000
	Total	$4,500,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below. Local interests are also required to operate and maintain all works after completion.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, right-of-way, and dredged material disposal areas.	$ 665,000	
Modify or relocate buildings, utilities, roads and other facilities necessary in the construction of the project.	6,000	
Pay in cash 5 percent of the cost of the project assigned to flood control	2,131,000	
Pay in cash an additional amount equal to 20 percent of costs allocated to flood control less the cost of lands, relocations and associated costs.	7,853,000	
Total Non-Federal Costs	$10,655,000	

STATUS OF LOCAL COOPERATION: The local sponsor, the Metro East Sanitary District, is strongly supportive of the project. A Tax Referendum to provide sufficient funds for local sponsorship of the project was passed in February 1989. The local cost sharing agreement for the first construction item was executed in November 1989.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $31,965,000 is an increase of $12,885,000 from the latest estimate ($19,080,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 1,755,000
Sundry	11,130,000
Total	$12,885,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The project consists of rehabilitation of existing facilities and for the major part of the project, will not effect environmental conditions except for short term localized impacts. An environmental assessment will be prepared before award of construction contracts for items to be rehabilitated under each of the three local cost sharing agreements that will be used to complete this project.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 89. The total estimated cost of this project reflected in the Summarized Financial Data, is based on the Scope of Planning Report, submitted for review on 15 May 1989. A Letter Report (Feature Design Memorandum coverage) for the first item of work was approved 3 June 1989. A technical report for the next group of items to be rehabilitated, the gatewells and closure structures, is under review at the Washington level. A General Design Memorandum covering remaining project items is scheduled for March 1990.

APPROPRIATION TITLE: Construction, General - Flood Control - Local Protection

PROJECT: Pearl River Basin, St. Tammany Parish, LA (Continuing)

LOCATION: The project is located in the southeastern portion of the State of Louisiana and consists of the area bounded by the West Pearl River on the east, Interstate 10 on the north and west, and Lake Pontchartrain on the south.

DESCRIPTION: The recommended plan is a combination of levees, drainage structures and pumping plants both north and south of I-10, that provides 200 year flood protection to the area. All work is scheduled.

AUTHORIZATION: Supplemental Appropriation Act of FY 1985 and Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 1.7 to 1 at 8-3/8 percent.

TOTAL BENEFIT-COST RATIO: 1.5 to 1 at 8-3/8 percent.

INITIAL BENEFIT-COST RATIO: 1.4 to 1 at 8-3/8 percent (FY 1985).

BASIS OF BENEFIT-COST RATIO: Benefits and cost are from Pearl River Basin, Slidell, Louisiana, and Pearlington, Mississippi, Interim Report on Flood Control, June 1986. Benefits based on October 1985 price level; report approved April 1987.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$19,900,000
Estimated Non-Federal Cost		6,600,000
Cash Contribution	$2,120,000	
Other Costs	4,480,000	
Total Estimated Project Cost		26,500,000

STATUS (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Reach A	0	Sep 1994
Reach B	0	Sep 1994
Entire Project	0	Sep 1994

		Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1989	$ 1,947,000	
Conference Allowance for FY 1990	550,000	
Allocation for FY 1990	750,000 1/	
Allocations through FY 1990	2,697,000	14
Allocation Requested for FY 1991	730,000	17
Scheduled Balance to Complete After FY 1991	16,473,000	
Unscheduled Balance to Complete after FY 1991	0	

1/ Reflects $53,000 reduction assigned as savings and slippage, $6,000 sequestered in accordance with the GRAMM-RUDMAN-HOLLINGS Act, $259,000 reprogrammed to the project.

PHYSICAL DATA

Levees and Floodwalls:
Levees:
  Reach A - 4.5 miles
  Reach B - 10.5 miles
Floodgates:
  Reach A - One 10- x 8-foot
    Type: Box
    8 small floodgates
  Reach B - Two 7- x 8-foot
    Type: Box
    6 small floodgates

Pumping Plants:
  Reach A - One 50-cfs
  Reach B - One 250-cfs
    One 15-cfs

JUSTIFICATION: There are presently 3,265 residential and commercial structures valued at over $240,000,000, which are located within the recommended levee plan and are subject to flooding. The average annual urban damages with and without the recommended levee plan are $156,000 and $2,902,000, respectively. Approximately 64 percent of these damages are attributable to existing development and 36 percent to expected future development. The recommended plan provides 200-year protection from West Pearl River flooding and hurricane surges. The maximum flood of record which approached a 200-year event occurred in April 1983 and caused an estimated $5,500,000 in structural damages. The duration of this flood was approximately 4 to 5 days. Since the 1983 flood, there have been more than 600 new residential structures, many of which are valued at more than $100,000, and extensive commercial development within the West Pearl River flood plain. Considering this new development, a recurrence of the April 1983 flood would result in approximately $30,000,000 in structural damages. Other floods of recent history occurred in the Slidell area in April 1979 and April 1980 which approximated a 30-year and 60-year event, respectively. The average annual benefits, all flood control, are $3,551,000 based on 1 October 1985 price levels.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Engineering and Design	$675,000
Supervision and Administration	55,000
TOTAL	$730,000

NON-FEDERAL COSTS: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$4,111,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	369,000	
Pay 5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, and replacement of flood control facilities.	2,120,000	$154,000
Total Non-Federal Costs	$6,600,000	$154,000

The non-Federal sponsor has agreed to make all required payments concurrently with project construction (and reimburse its share of the construction costs over the life of the project).

STATUS OF LOCAL COOPERATION: The St. Tammany Levee District is the non-Federal sponsor. A Local Cooperation Agreement was signed 30 June 1986. This agreement is in accordance with the Water Resources Development Act of 1986. The current non-Federal cost estimate of $6,600,000, which includes a cash contribution of $2,120,000, is an increase of $686,000 from the non-Federal cost estimate of $5,914,000 noted in the Local Cooperation Agreement, which included a cash contribution of $1,642,000. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment including increased cost above.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $19,900,000 is the same as the latest estimate ($19,900,000) presented to Congress (FY 1990).

Item	Amount
Price Escalation on Construction Features	$-1,931,000
Postcontract Award and Other Estimating Adjustments	1,931,000 1/
Total	$ 0

1/ Based on increase in Engineering and Design and Supervision and Inspection to expand the scope of the General Design Memorandum to include more precise levee alignment and design details, consideration of a drainage structure at Doubloon Bayou that provides for navigation and a better definition as to how internal drainage would be maintained with project in place.

STATUS OF ENVIRONMENTAL IMPACT STATMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on 19 September 1986.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1985, and funds to initiate construction are expected to be appropriated in FY 1991.

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Grand Isle and Vicinity, Louisiana (Hurricane Protection) (Continuing)

LOCATION: The project is located along the Gulf of Mexico at Grand Isle, Louisiana, in south Jefferson Parish. The island is about 50 miles south of New Orleans and about 45 miles northwest of the mouth of the Mississippi River (Southwest Pass).

DESCRIPTION: The recommended plan of improvement would stabilize Grand Isle's gulf shore and provide protection from gulf waves generated by hurricanes of a magnitude that recur with an average frequency of once every 50 years. The plan consists of a berm and vegetated dune extending for the length of Grand Isle's gulf shore, and 3,300 feet of jetties to stabilize the eastern and western ends of the island. The project would provide no protection from still water flooding or from hurricane-driven bay waves. All work is scheduled.

AUTHORIZATION: Flood Control Act of 1965.

REMAINING BENEFIT - REMAINING COST RATIO: 1.1 to 1 at 6-7/8 percent.

TOTAL BENEFIT - COST RATIO: 0.9 to 1 at 6-7/8 percent.

INITIAL BENEFIT-COST RATIO: 1.9 to 1 at 6-7/8 percent (FY 1980).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available total fixed design estimate at 1989 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$22,436,000
Estimated Non-Federal Cost		13,899,000
Cash Contribution	$8,338,000	
Other	5,561,000	
Total Estimated Project Cost		36,335,000

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	50	Sep 1991

PHYSICAL DATA

Jetties: 3,300 linear feet

Sand Dune and Berm: 7.0 miles

	General Appropriation	Flood Control & Coastal Emergencies (PL 84-99)	Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1989	$12,945,000	$ 204,000	
Conference Allowance for FY 1990	2,900,000	0	
Allocation for FY 1990	2,787,000 1/	3,555,000	
Allocations through FY 1990	15,732,000	3,759,000	87
Allocation Requested for FY 1991	2,659,000	0	99
Scheduled Balance to Complete after FY 1991	286,000	0	
Unscheduled Balance to Complete after FY 1991	0	0	

1/ Reflects reduction of $280,000 assigned as savings and slippage, $30,000 sequestered in accordance with Gramm-Rudman-Hollings Act, and $197,000 reprogrammed to the project.

JUSTIFICATION: Grand Isle is a low-lying barrier island extending approximately 7.5 miles along the gulf shore, generally in a northeast to southwest direction, and is less than a mile wide at its center. Natural elevations range from approximately 3 to 5 feet, national geodetic vertical datum, along the gulf shore to sea level marsh along the bay shore of the island. A man-made dune with a crest elevation of 7 feet, national geodetic vertical datum, was constructed along the gulf shore of the island to replace the natural sand dune which Hurricane Carmen destroyed in 1974. The dune was constructed with funds from the Federal Disaster Assistance Administration.

Grand Isle is a base of operations for large offshore petroleum and sulphur industries and is a commercial and sport fishing center. It is also an important area for residents of Louisiana and nearby states. Of the 2,340 acres on the island, there are 640 acres in residential development; 210 in industrial development; and 213 in commercial, government, and public establishments. This latter acreage includes 126 acres of state-owned beach designated as a state park.

As a result of Grand Isle's location and topography, improvements on the island are subject to damage from erosion along its gulf shore and passes and from the combined effects of winds and tides generated by hurricanes. The project will provide no protection from still water flooding or from hurricane-driven bay waves. The average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$1,056,000
Prevention of Erosion	669,000
Recreation	1,119,000
Total	$2,844,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Complete:	
Dune Repair and Structural Reinforcement	$2,100,000
Engineering and Design	276,000
Supervision and Administration	283,000
TOTAL	$2,659,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Flood Control Act of 1965, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, including relocation.	$4,561,000	
Provide a cash contribution in an amount sufficient to insure that the local investment in cash, equivalent work, and fair market value or lands and relocations are at least equal to 30 percent of all first costs allocated to the hurricane protection of the project.	2,054,000	
Provide in cash or equivalent work an amount sufficient to pay the non-Federal share of construction costs allocated to beach erosion control.	4,665,000	
Assure maintenance, repairs, and periodic beach nourishment of the project after completion, as may be required to serve the intended purposes, in accordance with regulations prescribed by the Secretary of the Army, except that the Federal Government will contribute, for an initial 15 years, toward the cost of the beach nourishment associated with beach erosion prevention.	2,619,000	
Total Non-Federal Costs	13,899,000	$1,933,000

Prior to authorization of the project, local interests constructed a jetty along the western end of Grand Isle and placed sandfill on its landside. Local interests were given $1,000,000 credit for this work.

STATUS OF LOCAL COOPERATION: Local interests have the responsibility of providing rights-of-way, 30 percent of hurricane protection costs, 75 percent of beach erosion costs, and operation and maintenance of the completed work. The Louisiana Legislature, by Act 833 of 1982, authorized the Office of Public Works of the Louisiana Department of Transportation and Development to provide the non-Federal assurances for the Grand Isle Hurricane Protection and Beach Erosion project. On 11 January 1983, the Governor of Louisiana authorized the Office of Public Works to execute the required assurances as a

co-sponsor with the town of Grand Isle. The required assurances were executed on 16 March 1983, the construction rights-of-way for the original construction were provided on 4 May 1983, and local interest provided a cash contribution of $2,100,000 in June 1983, $70,000 in November 1985, $368,000 in September 1987 and $259,000 in May 1989. All construction rights-of-way have been provided. In addition local interests constructed a jetty along the western end of Grand Isle and placed sand fill on its landside prior to authorization of the project and they were given credit for $1,000,000 of this work. An additional amount of $5,800,000 will be required prior to project completion. A revised right-of-entry for the dune and beach restoration has been requested from the locals on 13 October 1989.
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $22,436,000 is an increase of $2,419,000 from the latest estimate ($20,017,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 65,000
Post Contract Award and Other Estimating Adjustments	2,354,000
TOTAL	$2,419,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A final Environmental Impact Statement was filed with the Council on Environmental Quality on 8 October 1976. An updated statement was prepared with the Phase I General Design Memorandum and submitted to the Environmental Protection Agency on 24 August 1979. A supplemental information report to the Environmental Impact Statement on the changed borrow areas in the Gulf was completed in August 1980. An Environmental Assessment, covering the minor erosion repair, breaking of accreting sand bar, breakwater construction, and the east and west jetty extension, was filed with the Environmental Protection Agency on 19 July 1985. An Environmental Assessment, evaluating the impacts of the one time use of the east end borrow pit for the proposed rehabilitation was filed with the Environmental Protection Agency on 10 April 1986. An Environmental Assessment, evaluating the impacts of the cuspate sand bar removal and the east and west jetty extensions, was filed with the Environmental Protection Agency on 2 July 1987. A supplemental Environmental Impact Statement addressing impacts associated with the permanent periodic use of the east end borrow pit for maintenance only, is currently unscheduled. An Environmental Assessment for beach and dune restoration using offshore borrow pits as well as Bayou Rigaud as a clay borrow source was signed on 25 September 1989.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1978, and funds to initiate construction were appropriated in FY 1980.

Construction was essentially completed in late summer 1985, at a cost of $8,967,000, when the project was damaged by Hurricanes Danny, Elena, and Juan. The damages involved loss of approximately 6,000 feet of dune; partial loss of approximately 14,000 feet of dune; and essentially no damage to the remaining 18,000 feet of dune. While the project itself was severely damaged, it nevertheless was instrumental in preventing severe structural damage on Grand Isle. No structural damage was sustained in Hurricanes Danny and Elena, and only minor structural damage in Juan. A preliminary estimate of damage prevented by the project, despite loss of beach which occurred in the winter storms of 1984 and 1985, is approximately $12,000,000. Additional damage to the project occurred during Hurricane Bonnie in 1986, Hurricanes Gilbert and Florence in 1988 and Hurricanes Chantal and Jerry in 1989.

The repair and restoration of the Grand Isle project will be accomplished by two separate contracts. The jetty extensions and sand bar removal contract consisted of a 200 foot east jetty extension, a 500 foot west jetty extension, removal of about 408,000 cubic yards of sand from the cuspate bar, and placement of the excavated sand on the eroded beach in the East End State Park. This contract was completed on 5 February 1988. The dune repair and structural reinforcement contract will accomplish all additional items of work necessary to fully restore the project, including the placement of over one million cubic yards of sand to reconstruct the beach and dune, construction of offshore breakwaters, placement of a clay core in portions of the dune, and restoration of vehicular ramps, pedestrian crossovers, and dune vegetation. This contract is currently scheduled for award in March 1990, pending receipt of non-Federal right-of-entry.

The State's 1989/1990 Capital Outlay Bill includes $4,750,000 for their share of the project. This is sufficient to meet FY 1990 requirements. The remaining amount of $791,000 is expected to be available in July 1990.

APPROPRIATION TITLE: Construction General - Local Protection (Flood Control) - Construction

PROJECT: Lake Pontchartrain, Louisiana, and Vicinity (Hurricane Protection)(Continuing)

LOCATION: The project is located in St. Charles, Jefferson, Orleans, St. Bernard, and St. Tammany Parishes in southeast Louisiana in the general vicinity of New Orleans adjacent to Lake Pontchartrain.

DESCRIPTION: The recommended plan consists of a new levee north of US HWY 61, from the Jefferson-St. Charles Parish boundary to the east Bonnet Carre' Spillway guide levee; a new levee along the Jefferson Parish lakefront; an enlarged New Orleans lakefront levee landward of the seawall; a new and enlarged levee and concrete-capped sheetpile wall along both sides of the Inner Harbor Navigation Canal (IHNC); a new levee and floodwall along the lakefront from the airport to South Point; an enlarged levee from South Point to the Gulf Intracoastal Waterway (GIWW); an enlarged levee and new floodwall along the north of the Mississippi River-Gulf Outlet (MR-GO) and GIWW from the IHNC to the barrier; a new levee in the Chalmette area from the IHNC levee along the south bank of the MR-GO to approximately 2-1/2 miles northwest of Verret and west to the Mississippi River levee near Caernavon; a strengthened Mandeville seawall on the north shore at present height; and a new pumping station and vertical lift gates for the Florida Avenue Complex. The only unscheduled part of the project is the strengthening of the Mandeville seawall.

AUTHORIZATION: Flood Control Act of 1965 and Water Resources Development Acts of 1974 and 1986.

REMAINING BENEFIT TO REMAINING COST RATIO: 5.0 to 1 at 3-1/8 percent.

TOTAL BENEFIT - COST RATIO: 8.1 to 1 at 3-1/8 percent.

INITIAL BENEFIT-COST RATIO: 17.6 to 1 at 3-1/8 percent (FY 1967).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest availabe evaluation approved in February 1985 at 1984 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Total Appropriation Requirement		$423,000,000
Scheduled Construction	$421,056,000	
Unscheduled Construction	1,944,000	

				Accum. Pct. of Est. Fed. Cost
Future Non-Federal Reimbursement			$ 11,000,000	
Scheduled Construction		$ 11,000,000		
Unscheduled Construction		0		
Estimated Federal Cost (Ultimate)			412,000,000	
Scheduled Construction		410,456,000		
Unscheduled Construction		1,944,000		
Estimated Non-Federal Cost			177,000,000	
Scheduled Construction		176,102,000		
Cash Contribution	$109,337,000			
Other Costs	55,765,000			
Reimbursements:	11,000,000			
Hurricane Protection 11,000,000				
Unscheduled Construction		898,000		
Cash Contribution	898,000			
Other Costs	0			
Reimbursements	0			
Total Estimated Scheduled Construction Cost			586,158,000	
Total Estimated Unscheduled Construction Cost			2,842,000	
Total Estimated Project Cost			589,000,000	
Allocations to 30 September 1989			217,325,000	
Conference Allowance for FY 1990			39,898,000	
Allocation for FY 1990			34,292,000 1/	
Allocations through FY 1990			251,617,000	59
Allocation Requested for FY 1991			11,655,000	62
Scheduled Balance to Complete after FY 1991			157,784,000	
Unscheduled Balance to Complete After FY 1991			$ 1,944,000	

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
New Orleans East Unit	89	Sep 1995
New Orleans West Unit	5	Sep 2006
Mandeville Unit	0	Indefinite 2/
Chalmette Unit	95	Jan 1997
Entire Project	77	Sep 2006 3/

2/ Completion schedule indefinite until financial support if furnished by local interests.

3/ Excludes Mandeville Unit which has an indefinite completion date.

1/ Reflects reduction of $3,849,000 assigned as savings and slippage, $410,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $1,347,000 reprogrammed from the project.

PHYSICAL DATA

Levees: Average height: 16 feet
Length: 80 miles

Dam Closures: 2

Pumping Plant: 1

Control Valve Structures: 3

Drainage Structures: 9

Floodwalls: 17.9 miles

Floodgates: 2

JUSTIFICATION: The lowlands in the Lake Pontchartrain tidal basin are subject to tidal overflow. The Greater New Orleans Metropolitan Area which lies in this basin will continue its rapid economic development in the future years even though severe damages have resulted from several hurricanes in the past years. Hurricane damages result from surges entering Lake Pontchartrain from Lake Borgne through natural tidal passes at the Rigolets and Chef Menteur Passes and the Inner Harbor Navigation Canal. The surges are intensified by local wind effects and the combination of waves and surges causing overtopping of the protective works along the shores of Lake Pontchartrain. The eastern portion of the area is also subject to flooding by surges and waves that move directly from Lake Borgne and overtop the existing inadequate protective system seaward of the developed land areas. As a result, residences and industrial and commercial establishments suffer damage, business activities are disrupted, lives are endangered, and hazards to health are created. Hurricanes much more severe than any of record are possible. In the event of the occurrence of such a severe hurricane, catastrophic property damage and loss of human life would be experienced. Local interests have requested protection against these threats to life and property. Hurricane Betsy, in September 1965, caused extensive damage and flooding of urban areas of the New Orleans area to depths of up to 10 feet. Hurricane Camille occurred in the project area in August 1969, and flooded areas along the Inner Harbor Navigation Canal. Extensive flooding and overtopping of levees would have occurred in the project area in September 1974, if Hurricane Carmen had continued on its predicted course. In 1985, Hurricane Juan caused extensive flooding in the St. Charles Parish area. The Lake Pontchartrain hurricane protection project will provide protection from similar occurrences. However, flooding also occurred in St. John the Baptist Parish which will not be protected by the project. The project will provide protection against flooding from the Standard Project Hurricane (SPH). The average annual benefits, all flood control, are $179,856,000, based on 1 October 1989 prices.

FISCAL YEAR 1991: The requested amount will be applied as follows:

NEW ORLEANS EAST UNIT		
Initiate: New Orleans Lakefront Levee Outfall Canal at Orleans		5,450,000
Complete: South Point to GIWW Levee		840,000
Engineering and Design		2,000,000
Supervision and Administration		1,782,000
	Subtotal	$10,072,000
NEW ORLEANS WEST UNIT		
Initiate: Jefferson Lakefront Station 354-435 (1st Enlargement)		$ 800,000
Engineering and Design		169,000
Supervision and Administration		169,000
	Subtotal	$ 1,138,000
CHALMETTE UNIT		
Initiate and Complete: Floodwall Capping (North Florida Avenue)		$ 290,000
Continue: Surveys and Layouts		105,000
Complete: Floodwall Capping (Bayou Dupre)		50,000
	Subtotal	$ 445,000
	Total	$11,655,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Flood Control Act of 1965, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, and right-of-ways, including borrow areas and spoil disposal areas.	$ 39,638,000	-
Accomplish alterations to roads, pipelines, cables, wharves, oil wells, and any other facilities necessary for construction of the project.	16,127,000	-
Bear 30 percent of the total project cost, including the items listed above and a cash contribution or equivalent work specifically undertaken as an integral part of the project after authorization and in accordance with construction schedules as required by the Chief of Engineers, excluding a reimbursement to the Federal Government for costs allocated due to the Water Resources Development Act of 1974.	110,235,000	-
Reimburse the Federal Government for costs allocated due to the Water Resources Development Act of 1974.	11,000,000	
Bear all costs of operations, maintenance, and replacements of all features of the project works.		$ 994,000
Total Non-Federal Costs	$177,000,000	$ 994,000

In addition, local interests, through the combined efforts of the State of Louisiana, local levee and drainage districts, and parish police juries, spent an estimated $25,366,000 between 1930-1963, based on the best cost records available, to improve and maintain the hurricane protection system existing prior to project authorization. Available costs of record are as follows:

Combination of State of Louisiana and Lake Borgne Levee District and Chalmette Back Levee District on the Chalmette Back Levee Protection Systems	$ 4,410,000
Orleans Levee District Board	12,010,000
Port of New Orleans (levees along Industrial Canal)	924,000
Pontchartrain Levee District	5,022,000
Fourth Drainage District of Jefferson Parish	3,000,000
Total	$25,366,000

A very severe hurricane, "Betsy," occurred in the project area in September 1965 just prior to the authorization of the project in October 1965. Considerable damage was done to many of the existing levees, and local interests immediately instituted an accelerated rehabilitation program, with the view of restoring and strengthening existing protection prior to succeeding hurricane seasons. Only work which was performed by local interests after the project authorization, and which conforms to the project design criteria and alignment, is considered as work-in-kind in lieu of a cash contribution.

STATUS OF LOCAL COOPERATION: Assurances are required for the two independently justified plans.

1. Chalmette Area Plan:

a. Orleans Levee District: New agreements of assurances covering all local cooperation requirements and a deferred payment plan as authorized by the Water Resources Development Act of 1974 were executed on 30 March 1976. These assurances were accepted on behalf of the United States on 7 December 1977.

b. St. Bernard Parish Police Jury and Lake Borgne Basin Levee District: New joint agreements of assurances covering all local cooperation requirements and a deferred payment plan as authorized by the Water Resources Development Act of 1974, were executed on 2 April 1976. These assurances were accepted on behalf of the United States on 7 December 1977.

2. High Level Plan:

a. Orleans Levee District: For the Barrier Plan, new agreements of assurances covering all local cooperation requirements and a deferred payment plan as authorized by the Water Resources Development Act of 1974, were executed on 30 March 1976. These assurances were accepted on behalf of the United States on 7 December 1977. Amended assurances for the High Level Plan were executed by the local sponsor on 29 May 1985, and accepted by the United States on 21 June 1985.

b. St. Tammany Parish: The Louisiana Office of Public Works executed an act of assurance dated 8 November 1976, agreeing to fulfill all local cooperation requirements for that portion of the project in St. Tammany Parish. These assurances were accepted on behalf of the United States on 7 December 1977. Amended assurances for the High Level Plan are required; however, due to failure of the local sponsor to agree to the items of local cooperation, this portion of the project has an indefinite completion date.

c. Pontchartrain Levee District: New agreements of assurances covering all local cooperation requirements and a deferred payment plan as authorized by the Water Resources Development Act of 1974, were executed on 20 September 1976. On 8 November 1976, the Louisiana Office of Public Works agreed to lend financial assistance above $100,000 to the Pontchartrain Levee District for that portion of the Barrier Plan which is the responsibility of that levee district. These assurances were accepted on behalf of the United States on 7 December 1977. Supplemental assurances for the High Level Plan were executed by the Pontchartrain Levee District for the St. Charles Parish portion of the project on 20 April 1987, and accepted on behalf of the United States on 7 August 1987.

d. East Jefferson Levee District: Supplemental assurances for the High Level Plan were executed by the East Jefferson Levee District for the Jefferson Parish portion of the project on 16 January 1987. A financial plan was received on 25 November 1987, and accepted on behalf of the United States on 21 December 1987. These levees were previously the responsibility of the Pontchartrain Levee District.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (Corps of Engineers) cost estimate of $423,000,000 is a decrease of $30,000,000 from the latest estimate ($453,000,000) submitted to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$- 6,789,000
Design Changes	- 2,192,000
Post Contract Award and Other Estimating Adjustments	-21,019,000
Total	$-30,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 17 January 1975. By court order dated 30 December 1977, a revised Environmental Impact Statement was ordered. A draft revised Environmental Impact Statement for the High Level Plan and the Reevaluation Report, which documents the proposal to adopt that plan instead of the Barrier Plan, were released to the public and filed with the Environmental Protection Agency on 16 December 1983. The final revised Environmental Impact Statement was filed with the Environmental Protection Agency on 7 December 1984.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1966, and funds to initiate construction were appropriated in FY 1967.

APPROPRIATION TITLE: Construction ~~General -~~ Local Protection (Flood Control)

PROJECT: Larose to Golden Meadow, Louisiana (Hurricane Protection) (Continuing)

LOCATION: The project is located in Lafourche Parish, Louisiana, about 28 miles southwest of New Orleans and about 25 miles inland from the Gulf of Mexico along Bayou Lafourche, south of the Gulf Intracoastal Waterway, extending from Larose to Golden Meadow, a distance of about 16 miles.

DESCRIPTION: The project consists of a ring levee approximately 40 miles in length encircling the areas along Bayou Lafourche from Larose to Golden Meadow and extending approximately 9,800 feet from each side of the bayou. Enlargement of about 3 miles of the existing levee at Golden Meadow and construction of floodgates on Bayou Lafourche at the upper and lower limits of the protection system would be used for navigation and hurricane protection purposes. Approximately 8 miles of low interior levees and eight multi-barrelled culverts controlled by flap gates are needed to regulate intercepted drainage. All of the project work is scheduled.

AUTHORIZATION: Flood Control Act of 1965.

REMAINING BENEFIT - REMAINING COST RATIO: 11.7 to 1 at 3-1/4 percent.

TOTAL BENEFIT - COST RATIO: 2.7 to 1 at 3-1/4 percent.

INITIAL BENEFIT - COST RATIO: 1.4 to 1 at 3-1/4 percent (FY 1972).

BASIS OF BENEFIT - COST RATIO: Benefits are based on General Design Memorandum Number 1, and Supplement Number 1, approved 18 May 1973 at 1973 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$70,700,000
Estimated Non-Federal Cost		30,300,000
Cash Contribution	$16,185,000	
Other	14,115,000	
Total Estimated Project Cost		101,000,000

STATUS (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	66	Nov 2002

		Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1989	54,276,000	
Conference Allowance for FY 1990	3,900,000	
Allocation for FY 1990	4,192,000 1/	
Allocations through FY 1990	58,468,000	83
Allocation Requested for FY 1991	4,210,000	89
Scheduled Balance to Complete after FY 1991	8,022,000	
Unscheduled Balance to Complete after FY 1991	0	

1/ Reflects reduction of $376,000 assigned as savings and slippage, $40,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, $708,000 reprogrammed to the project.

PHYSICAL DATA

Levees	Floodgates	Drainage Structures
Loop levee approximately 40 miles in length along both banks of Bayou Lafourche; enlargement of three miles of levees at Golden Meadow; eight miles of low interior levee to regulate intercepted drainage.	Two	Eight multibarreled culverts

JUSTIFICATION: The project area is of great economic importance to the State of Louisiana, and includes lands and improvements having an aggregate value of approximately $175,000,000 (1989 prices). In 1980, the population of the area was 20,000 and increasing steadily. While oil and gas production and commercial fisheries, along with related service industries, dominate the economy of the area, a wide spectrum of economic activity exists.

Situated within a region of high hurricane incidence (on the average, two hurricanes threaten the Louisiana coast every 3 years), the project area is highly vulnerable to overflow from the tidal surges which accompany hurricanes. Should a hurricane similar to that of 1915 move through the area, damages of approximately $9,235,000 (1989 prices) could be expected. If a major hurricane, approaching the standard project hurricane in intensity, should move through the area, the entire project area would be submerged in the tidal surge and monetary damages would likely amount to $73,139,850 (1989 prices). This damage would include minor crop losses, but the bulk of the damage would consist of physical damage to residential, commercial, and industrial establishments.

The project will provide protection against flooding from hurricanes having a frequency of occurrence of up to once in 100 years. The average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$4,204,000
Fish and Wildlife	0
Mitigation Area Redevelopment	0
Area Redevelopment	51,000
Total	$4,255,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate:	
Section D North, 1st Lift	$1,730,000
Continue:	
Mitigation	580,000
Complete:	
Section F Levee	1,440,000
Surveys and Layouts	50,000
Engineering and Design	200,000
Supervision and Administration	210,000
Total	$4,210,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Flood Control Act of 1965, the Non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, and rights-of-ways, including borrow areas and spoil disposal areas.	$ 4,353,000	-
Accomplish alterations to roads, pipelines, cables, wharves, oil wells, and any other facilities necessary for construction of the project.	$ 9,762,000	-
Bear 30 percent of the total project cost, to include the items listed above and a cash contribution or equivalent work specifically undertaken as an integral part of the project after authorization and in accordance with construction schedules as required by the Chief of Engineers.	$16,185,000	-
Bear all cost of operation and maintenance including replacements.	-	$207,000
Total Non-Federal Costs	$30,300,000	$207,000

The Non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: Assurances covering all requirements of local cooperation were received from the South Lafourche Levee District and accepted on behalf of the United States on 29 August 1973. Local interests have requested and received funds from the State of Louisiana for rights-of-way acquisition and relocations required to support construction work.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (Corps of Engineers) cost estimate of $70,700,000 is the same as the latest estimate ($70,700,000) presented to Congress (FY 1990). This estimate includes the following items:

Item	Amount
Price Escalation on Construction Features	$+ 226,000
Post Contract Award and Other Estimating Adjustments	- 226,000
Total	$ 0

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with Council on Environmental Quality on 13 May 1974. A draft supplement to the Environmental Impact Statement covering the revised levee alignments, previously unidentified wetland impacts and necessary mitigation, was filed with the Environmental Protection Agency on 20 July 1984, and the final supplement was filed with the Environmental Protection Agency on 1 March 1985.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1967, and funds to initiate construction were appropriated in FY 1972.

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: New Orleans to Venice, Louisiana (Hurricane Protection)(Continuing)

LOCATION: The project is located along the east bank of the Mississippi River from Phoenix, Louisiana, approximately 26 miles southeast of New Orleans, Louisiana and from City Price, Louisiana, on the west bank approximately 42 miles southeast of New Orleans, Louisiana to Venice, Louisiana.

DESCRIPTION: The recommended plan on the west side of the Mississippi River consists of enlarging approximately 13 miles of existing back levee between City Price, and Tropical Bend, Louisiana (Reach "A") and installing two 54" flap-gated corrugated metal culverts; enlarging approximately 12 miles of existing back levee between Tropical Bend, and Fort Jackson, Louisiana (Reach "B-1") as well as constructing a floodgate at Empire, Louisiana; enlarging approximately 9 miles of existing back levee between Fort Jackson, and Venice, Louisiana (Reach "B-2"); and enlarging approximately 34 miles of existing Mississippi River levee from Mile 10 to Mile 44 above Head of Passes (West Bank River Levee). On the east side of the Mississippi River, the recommended plan consists of enlarging approximately 16 miles of existing back levee between Phoenix, and Bohemia, Louisiana (Reach "C") and installing ten flap-gated culverts. The entire project is scheduled.

AUTHORIZATION: Flood Control Act of 1962.

REMAINING BENEFIT-REMAINING COST RATIO: 2.7 to 1 at 2-7/8 percent.

TOTAL BENEFIT-COST RATIO: 2.0 to 1 at 2-7/8 percent.

INITIAL BENEFIT-COST RATIO: 2.4 to 1 at 2-7/8 percent (FY 1964).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in February 1972 at 1971 price levels.

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$160,000,000	
Estimated Non-Federal Cost		68,000,000	
Cash Contribution	$33,026,000		
Other	34,974,000		
Total Estimated Project Cost		$228,000,000	
Allocations to 30 September 1989		79,318,000	
Conference Allowance for FY 1990		13,600,000	
Allocation for FY 1990		17,759,000 1/	
Allocations through FY 1990		97,077,000	60
Allocation Requested for FY 1991		15,900,000	70
Scheduled Balance to Complete after FY 1991		47,023,000	
Unscheduled Balance to Complete after FY 1991		0	

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	42	September 2013
Reach "A" - City Price to Tropical Bend	3	September 2013
Reach "B-1" - Tropical Bend to Fort Jackson	80	September 1998
Reach "B-2" - Fort Jackson to Venice	92	June 1993
Reach "C" - Phoenix to Bohemia	90	February 1995
West Bank River Levee	20	September 2004

Each reach, when complete, will provide interim protection from flooding.

1/ Reflects reduction of $1,312,000 assigned as savings and slippage, $140,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $5,611,000 reprogrammed to the project.

PHYSICAL DATA

Reach	Levees and Floodwalls	Drainage Structure
"A" - City Price to Tropical Bend	Enlarge approximately 13 miles	Two 54" Flap-gated corrugated metal culverts.
"B-1" - Tropical Bend to Fort Jackson	Enlarge approximately 12 miles	Floodgate at Empire
"B-2" - Fort Jackson to Venice	Enlarge approximately 9 miles	None
"C" - Phoenix to Bohemia	Enlarge approximately 16 miles	Ten flap-gated culverts.
West Bank River Levee	Enlarge approximately 34 miles of levee on the Mississippi River west bank from Mile 10 to Mile 44 above Head of Passes.	None

JUSTIFICATION: The project will provide protection from hurricane tidal overflow to a major part of the developed and inhabited area along the Mississippi River delta. Approximately seventy-five percent of the population and seventy percent of the improved lands within the delta are contained in the project area. Hurricanes in the past have caused overtopping of the existing protective works, resulting in extensive damage to structures, industries, other urban and rural developments, crops, and livestock. Evacuation of inhabitants has been required frequently. The most recent storm causing extensive damages, Hurricane Camille, occurred on 17 August 1969. Severe damages were sustained in Reaches B-1 and B-2 (Empire to Venice), and somewhat lesser damages were sustained in Reach A (Port Sulphur to Empire). Estimated flood damage sustained in the project area due to hurricanes is as follows:

Year of Hurricane	Actual Damages Sustained	Damages at Present Value and Conditions of Development
September 1915	$ 2,325,000	$116,100,000
September 1956 (Flossy)	1,709,000	11,300,000
September 1957 (Esther)	1,180,000	7,900,000
September 1965 (Betsy)	45,500,000	223,400,000
August 1969 (Camille)	62,500,000	218,900,000

Benefits credited to the project consist of reduction of flood damage from hurricane tidal overflow caused by overtopping of the existing back levees and land intensification. The average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$14,986,000
Mitigation	13,000
Total	$14,999,000

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FISCAL YEAR 1991: The requested amount will be applied as follows:

Reach A		
Initiate:	Sta. 249+00 - 315+00	$ 780,000
Continue:	Hayes Canal Pumping Sta. - Floodwall	200,000
	Gainard Woods P.S. - Floodwall	330,000
	Surveys & Layouts	10,000
Complete:	Sta. 113+00 - 249+00	1,260,000
Engineering and Design		200,000
Supervision and Administration		152,000
	Subtotal	$2,932,000
Reach B-1		
Complete:	Sta. 0-100(3rd Enlgt)	$ 296,000
	Sta. 418-635 (3rd Enlgt)	260,000
Continue:	Surveys & Layouts	10,000
Engineering and Design		50,000
Supervision and Administration		100,000
	Subtotal	$ 716,000
Reach B-2		
Engineering and Design		$ 200,000
Supervision and Administration		40,000
		$ 240,000

West Bank River Levee		
Complete:	Sta. 996-1313 (1st Enlgt)	$ 3,050,000
Continue:	Sta. 764-996 (1st Enlgt)	1,512,000
	Sta. 624-764 (1st Enlgt)	2,859,000
	Sta. 378-624 (1st Enlgt)	2,000,000
	Surveys & Layouts	30,000
Initiate:	Sta. 8-378 (1st Enlgt)	1,000,000
Engineering and Design		1,050,000
Supervision and Administration		511,000
	Subtotal	$12,012,000
	Total	$15,900,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Flood Control Act of 1965, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Cost
Provide lands, easements, and right-of-ways including borrow areas and spoil disposal areas.	$ 7,053,000	-
Accomplish alterations to roads, pipelines, cables, wharves, oil wells, and any other facilities necessary for construction of the project.	10,396,000	-
Bear 30 percent of the total project cost, to include the items listed above and a cash contribution or equivalent work specifically undertaken as an integral part of the project after authorization and in accordance with construction schedules as required by the Chief of Engineers.	50,551,000	-
Bear all costs of operation and maintenance including replacements.		$603,000
Total Non-Federal Costs	$68,000,000	$603,000

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In addition, local interests, prior to project authorization, expended in excess of $3,761,000 between 1 April 1926, and 31 December 1959, in the Mississippi River delta area below New Orleans for levees and interior drainage facilities to provide protection against inundation from storm tides.

STATUS OF LOCAL COOPERATION: Assurances of local cooperation for Reaches A, B-1, B-2, and C furnished by the Plaquemines Parish Commission Council were accepted on behalf of the United States on 14 April 1965. Supplemental assurances covering provisions of the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, furnished by the Plaquemines Parish Commission Council were accepted on behalf of the United States on 20 June 1973. The local sponsor, on 29 December 1987, provided the supplemental assurances of local cooperation for the West Bank River Levee. These assurances were accepted on 28 January 1988.

Local interests have constructed the first and second lifts of Reach C. Based on more detailed planning of construction, a third and fourth lift are required to raise the existing levee to project grade. Credit for equivalent work in lieu of cash contribution is given upon evaluation of the construction.

Local interests have been providing their required cash contributions on schedule to maintain their proportionate share of the project costs.

COMPARISON OF FEDERAL (CORPS OF ENGINEERS) COST ESTIMATE: The current Federal (Corps of Engineers) cost estimate of $160,000,000 is a decrease of $19,000,000 from the latest estimate ($179,000,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$- 6,894,000
Design Changes	-14,006,000
Post Contract Award and Other Estimating Adjustments	+ 1,900,000
Total	$-19,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 24 January 1975; however, during subsequent review, it became apparent that the final Environmental Impact Statement was deficient. A draft Environmental Impact Statement supplement was submitted to the Environmental Protection Agency on 23 March 1984, and the final Environmental Impact Statement supplement with a Section 404 evaluation was filed with the Environmental Protection Agency on 12 April 1985. A draft Supplemental Environmental Impact Statement (Supplement II) for work on the West Bank River Levee was submitted to the Environmental Protection Agency on 5 August 1987, and the final was submitted on 4 December 1987.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1963 and funds to initiate construction were appropriated in FY 1964.

APPROPRIATION TITLE: Construction General - Local Protection (Flood Control)

PROJECT: Westwego to Harvey Canal, Louisiana (Hurricane Protection) (New)

LOCATION: Urban area within Jefferson Parish between Westwego and the Harvey Canal on the west bank of the Mississippi River in the vicinity of New Orleans, Louisiana.

DESCRIPTION: The recommended plan will consist of new and enlarged levees along the permitted alignment from the Westwego area to the V-levee, along the existing V-levee alignment to the vicinity of Estelle Pumping Station, and along the existing Harvey Canal-Bayou Barataria Levee to the Roussell Pumping Station. From that point, a floodwall is proposed to parallel the Harvey Canal and tie back into the Harvey Lock. Floodwalls will also be used along the levee alignment mentioned above when tying into pumping stations and where land constraints dictate. The entire project is scheduled.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT TO REMAINING COST RATIO: 3.4 to 1 at 8-7/8 percent.
TOTAL BENEFIT-COST RATIO: 2.6 to 1 at 8-7/8 percent.
BASIS OF BENEFIT-COST RATIO: Benefits are from the General Design Memorandum No. 1, submitted 28 Jul 89.

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$55,200,000	
Estimated Non-Federal Cost		29,700,000	
Cash Contribution	$17,480,000		
Other	12,220,000		
Total Estimated Project Cost		84,900,000	
Allocations to 30 September 1989		2,050,000	
Conference Allowance for FY 1990		1,100,000	
Allocation for FY 1990		1,085,000 1/	
Allocations through FY 1990		3,135,000	6
Allocation Requested for FY 1991		3,700,000	12
Scheduled Balance to Complete after FY 1991		48,365,000	
Unscheduled Balance to Complete after FY 1991		0	

STATUS (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	2	December 2002

PHYSICAL DATA

Levees: Average Elevation: 11 feet
Length: 19.3 miles

Floodwalls: Elevation: 9.5 feet
Length: 2.7 miles

Access Gates: 26

1/ Reflects reduction of $15,000 sequestered in accordance with the Gramm-Rudman-Hollings Act.

JUSTIFICATION: The project area is generally bounded by the Harvey Canal to the east, Lakes Cataouatche and Salvador to the west, the Mississippi River to the north, and Barataria Bay to the south. Tidal waters can be carried into the project area through Lakes Cataouatche and Salvador, which connect to the Gulf of Mexico through Barataria Bay, and into the Bayou Segnette and the Harvey Canal. Fresh water comes into the area from the Mississippi River via the Harvey and Algiers Locks, direct rainfall, and pumpage from leveed areas.

Several hurricanes and tropical storms have passed through or near the project area, including the following major storms: the 1915 hurricane, the 1947 hurricane, and Hurricanes Flossy (1956), Hilda (1964), Betsy (1965), Carmen (1974), Babe (1977), Bob (1979), Danny (1985), and Juan (1985). Hurricane Flossy brought torrential rains and tidal flooding to the project area, with nearby areas recording 16.7 inches of rain in a 24-hour period. Hurricane Hilda raised water levels at Barataria and Lafitte to 3.6 and 4.04 feet NGVD, respectively. Hurricanes Betsy and Carmen also caused flooding to some parts of the project area. Hurricane Juan, generally characteristic of a storm event of approximately 25 years, broke high water records throughout the area, with stages in the Harvey Canal estimated to be about the 60-year event. On the west bank, three local levees were breached and several subdivisions were flooded by tidal inundation and the long duration of the high stages. The total precipitation for Juan ranged from 8 to 12 inches over the project area. This storm clearly illustrated that the present local levee system is unable to provide protection against a tidal surge. The quick action and massive flood fighting efforts by the West Jefferson Levee District, the Parish of Jefferson, the National Guard, and thousands of volunteers prevented more extensive flooding of potentially catastrophic proportions.

The project will provide Standard Project Hurricane (SPH) protection to approximately 42,900 acres of urban land. Total value of all lands is approximately $858,000,000, and of all improvements is $1,512,260,000. The 1980 population is 66,700. Damages from Hurricane Juan which could have been prevented with the project in-place are estimated at $950,000,000. The average annual benefits, all flood control, are $35,480,000, based on 1 October 1989 prices.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate:	
Bayou Segnette Pumping Station Floodwall	$ 10,000
Old Westwego Pumping Station Floodwall	10,000
New Westwego Pumping Station Floodwall	10,000
Oak Cove to V-Levee (1st Lift)	1,400,000
V-Levee West of Vertex	20,000
Cultural Resoures	30,000

Complete:	
Mitigation	190,000
Highway 45 Levee (1st Lift)	560,000
Engineering and Design	800,000
Supervision and Administration	670,000
Total	$3,700,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986 (PL99-662), the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, and rights-of-way, including borrow and excavated material disposal areas.	$ 7,370,000	
Accomplish all necessary alterations and relocations to roads, railroads, pipelines, cables, wharves and other facilities necessary for construction of the project.	4,850,000	
Pay 35 percent of the first cost allocated to hurricane protection. Funds provided by non-Federal interests for interim hurricane protection may be considered beneficial expenditures and may be credited as a part of the non-Federal contribution of the project pursuant to the Water Resources Development Act of 1986.	17,480,000	
Bear all costs of operation, maintenance, and replacement of all features of hurricane protection facilities.		$76,000
Total Non-Federal Costs	$29,700,000	$76,000

Prior to project authorization, local interests expended approximately $6,700,000 for levee construction to provide protection against inundation from storm tides. In addition, local interests have spent or plan to spend, an estimated $21.4 million, subsequent to project authorization for accomplishment of work integral to the project plan. The extent of local interests' final credit will be based on compatibility of work with final designs and is subject to final audit of expenditures.

STATUS OF LOCAL COOPERATION: By letter dated 2 December 1986, the Board of Commissioners of the West Jefferson Levee District advised the Corps of Engineers that they intend to serve as local sponsor for the plan recommended in the feasibility report. Further, by letter dated 3 June 1988, the Board also advised the Corps that they will enter into a local cooperation agreement for the V-Levee North plan - an alternative alignment which avoids any Section 404(c) and Jean Lafitte National Park lands. The West Jefferson Levee District stated that by law they are empowered to provide all non-Federal cooperation required for the project, and intend to enter into a binding agreement with the Corps of Engineers. A final signed Local Cooperation Agreement is currently scheduled for February 1990.

Local interests have accomplished engineering and design work and constructed numerous reaches of levee. Specifically, about $21,400,000 has been recommended in tentative credit to local interests for work accomplished or to be accomplished, subsequent to project authorization. Actual credit for equivalent work in lieu of cash contribution is given upon evaluation of the construction.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (Corps of Engineers) cost estimate of $55,200,000 is a decrease of $2,900,000 from the latest estimate ($58,100,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ -3,100,000
Design Changes	200,000
Total	$ -2,900,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS was filed with EPA on 23 Oct 87. The Record of Decision was signed 28 Mar 89.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1988 and funds to initiate construction were appropriated in FY 1990.

APPROPRIATION TITLE: Construction, General - Local Protection - (Flood Control)

PROJECT: Alton to Gale Organized Levee Districts, Illinois and Missouri (Continuing, Deficiency Correction)

LOCATION: The levee system is located adjacent to the Mississippi River between Alton and Gale, Illinois.

DESCRIPTION: Repair levee slides to prevent breaching during high water conditions. The recommended plan will correct the slides by a lime stabilization procedure. Unscheduled portion reflects an estimate of future levee slides.

AUTHORIZATION: Flood Control Acts of 1936, 1938, and 1946.

REMAINING BENEFIT - REMAINING COST RATIO: The remaining benefit-remaining cost ratio is not applicable because the project is essentially completed, except for remedial work.

TOTAL BENEFIT - COST RATIO: Not Applicable.

INITIAL BENEFIT - COST RATIO: Not applicable.

BASIS OF BENEFIT - COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA

Actual Federal Cost		89,470,000	1/
Actual Non-Federal Cost	2/		
Cash Contributions			
Other Costs			
Total Original Project Cost		89,470,000	1/
Remedial Work			
Estimated Federal Cost		17,610,000	
Scheduled Construction	8,580,000		
Unscheduled Construction	9,030,000		

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	91	May 1992

PHYSICAL DATA

Levees: 183.3 miles

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Lower Mississippi Valley Division St. Louis District Alton to Gale Organized Levee Districts, IL and MO

10 JAN 1990

Estimated Non-Federal Cost		3,235,000	
Scheduled Construction	225,000		
Cash Contributions	225,000		
Other	0		
Unscheduled Construction	3,010,000		
Cash Contributions	3,010,000		
Other Costs	0		
Total Estimated Scheduled Remedial Construction Cost		8,805,000	
Total Estimated Unscheduled Remedial Construction Cost		12,040,000	
Total Estimated Project Cost		110,315,000	
Allocations to 30 September 1989		90,371,000	Accum % of Est Fed Cost
Conference Allowance for FY 1990		1,400,000	
Allocation for FY 1990		1,211,000 3/	
Allocations through FY 1990		91,582,000	86
Allocation Requested for FY 1991		4,400,000	90
Scheduled Balance to Complete after FY 1991		2,068,000	
Unscheduled Balance to Complete after FY 1991		9,030,000	

1/ Includes actual costs of $1,954,000 provided by the Productive Employment Appropriation Act of 1983 (Public Law 98-8) enacted 24 March 1983 (Jobs Bill).

2/ Data not available.

3/ Reflects reduction of $135,000 assigned as Savings and Slippage, $14,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $40,000 reprogrammed from the project.

JUSTIFICATION: Construction of the levees was completed in 1977. Some reaches of this levee system have, for many years, been experiencing a significant number of slides reducing the ability of the levee system to provide the authorized level of flood protection. It has been established that the slides are due to design deficiencies.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate:	Degognia-Fountain Bluff Item IV-B (Federal)	$ 1,000,000
	Grand Tower (Federal)	
	Item V-B	600,000
	Item V-C	340,000
Initiate and Complete:	Prairie du Rocher (cost-shared)	133,000
	Clear Creek (cost-shared)	40,000
	Bois Brule (cost-shared)	35,000
	Degognia-Fountain Bluff (cost-shared)	158,000
	Grand Tower (cost-shared)	67,000
Continue:	Grand Tower Item V-A (Federal)	1,068,000
Complete:	Prairie Du Rocher (Federal)	65,000
	Grand Tower Item V-D (Federal)	90,000
Engineering and Design		359,000
Supervision and Administration		445,000
Total		$ 4,400,000

NON-FEDERAL COST: In accordance with the cost sharing requirements and financing concepts reflected in the Water Resources Development Act of 1986, the Non-Federal sponsors must comply with the requirements listed below. Local interest are also required to operate and maintain all works after completion.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation Maintenance and Replacement Costs
Pay 25 percent of the costs allocated to flood control remedial work and bear all costs of operation, maintenance and replacement of flood control facilities	$3,235,000	1/
Total Non-Federal Costs	$3,235,000	

1/ Operation and Maintenance was included in the original flood control project. Incremental O&M due to repair of slides is unmeasurable.

The local sponsors will be required to make all payments concurrent with project construction or reimburse their share of construction costs over the life of the project.

STATUS OF LOCAL COOPERATION: All formal assurances were received prior to initial construction on the original project. Supplemental assurances have been executed for the Remedial work that is 100 percent Federally funded.

Additional Supplemental Assurances for the Remedial work that is to be cost shared in accordance with the provisions of the Water Resources Development Act of 1986 (Public Law 99-662) are scheduled as follows:

Levee District	Draft Supplemental Agreement	Final Supplemental Agreement
Prairie du Rocher	17 Oct 89	Jul 90
Clear Creek	Mar 90	Jul 90
Boise Brule	Apr 90	Jul 90
Degognia-Fountain Bluff	30 Aug 89	Jul 90
Grand Tower	7 Sep 89	Jul 90

Local interests for the cost shared Remedial work have indicated that they intend to seek an exemption from the cost sharing requirements. In the event that an exemption is not available, the sponsors will seek funding from the state of Illinois or local government entities. The financial analysis for each levee district will be performed to determine their financial capability prior to the initiation of construction.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $107,080,000 is an increase of $10,435,000 from the latest estimate ($96,645,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 637,000
Post Contract Award and Other Estimating Adjustments	9,798,000
Total	$10,435,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A Finding of No Significant Impact was signed on 7 September 1989 and was distributed to public agencies and officials.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 89. Previous funding included actual cost of $87,516,000 for the construction of the original projects, completed in 1977, and $1,954,000 provided by the Productive Employment Appropriation Act of 1983 (Public Law 98-8).

APPROPRIATION TITLE: Construction, General - Local Protection - (Flood Control)

PROJECT: Cape Girardeau - Jackson, Missouri - (Continuing)

LOCATION: The project is located in Cape Girardeau County, Missouri, along the right bank of the Mississippi River between river miles 50 and 55 above the Ohio River.

DESCRIPTION: The project includes a 157 acre dry detention reservoir; approximately 1 mile of channel improvements on Cape La Croix Creek and 2 miles of channel improvements on Walker Branch; 8 bridge replacements; and recreational/environmental features.

AUTHORIZATION: Water Resource Development Act of 1986 (PL 99-662).

REMAINING BENEFIT - REMAINING COST RATIO: 1.2 to 1 at 8 7/8 percent.

TOTAL BENEFIT - COST RATIO: 1.14 to 1 at 8 7/8 percent.

INITIAL BENEFIT - COST RATIO: 1.6 to 1 at 8 5/8 percent (FY 1987).

BASIS OF BENEFIT-COST RATIO: Benefits are based on Survey Report, Water Resource Investigation - Cape Girardeau - Jackson Metropolitan Area, Missouri, December 1983 at 1983 price levels.

SUMMARIZED FINANCIAL DATA			
Estimated Federal Cost			$24,880,000
Scheduled Construction		23,257,000	
Unscheduled Construction		1,623,000	
Estimated Non-Federal Cost			8,980,000
Scheduled Construction		8,422,000	
Cash Contribution	1,533,000		
Other Costs	6,889,000		
Unscheduled Construction		558,000	
Cash Contribution	0		
Other Costs	558,000		
Total Estimated Project Cost			$33,860,000

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	0	Dec 1992

PHYSICAL DATA

Channels: 3 miles
Dams: 1 Dry Detention Reservoir
Bridges: 8

			Accum % of Est Fed Cost
Allocations to 30 September 1989	2,700,000		
Conference Allowance for FY 1990	500,000		
Allocation for FY 1990	493,000	1/	
Allocations through FY 1990	3,193,000		13
Allocation Requested for FY 1991	7,700,000		44
Scheduled Balance to Complete after FY 1991	12,364,000		
Unscheduled Balance to Complete after FY 1991	1,623,000		

1/ Reflects $7,000 sequestered in accordance with the Gramm-Rudman-Hollings Act.

JUSTIFICATION: The Cape Girardeau - Jackson project area, population 42,000, contains approximately 210 square miles of rural, urban, and developing lands, including 22 square miles previously under study in the Cape La Croix Creek watershed and 5 square miles previously under study in the Little River Diversion Channel study. Gently rolling hill land divided into small watersheds characterizes the study area. It also includes significant flood plain area bordering the Mississippi River and the Little River Diversion Channel. The principal flooding problem within this watershed is flash flooding along Cape La Croix Creek and its tributaries. The type of property subject to flooding encompasses a full range of industrial, commercial and residential usages, as well as some agricultural usage.

In May 1986, the flood of record occurred when approximately 10 to 13 inches of rain fell over the basin causing an estimated $50,000,000 flood damage loss. Several floods have occurred previously, most notably in May 1973 and March 1977. These floods were caused by recorded rainfall of approximately 9 and 7 inches, respectively. Average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$ 3,484,000
Recreation	226,000
Total	$ 3,710,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate:	Lands and Damages	$ 13,000
	Detention Reservoir	605,000
Initiate & Complete:	Sewage Lagoon Levee	248,000
Continue:	Cape La Croix Creek Ditching	6,326,000
Engineering and Design		450,000
Supervision and Administration		565,000
Total		$ 7,700,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation Maintenance and Replacement Costs
Pay 5 percent of the cost of the project assigned to flood control	$1,533,000	
Provide lands, easements, right-of-way, and dredged material disposal areas.	3,716,000	
Modify or relocate buildings, utilities, roads and other facilities where necessary in the construction of the project.	3,237,000	
Pay one half of the separable costs allocated to recreation and bear all costs of operation and maintenance, and replacement of recreation facilities.	494,000	$ 15,000
Bear all costs of operation, maintenance and replacement of flood control facilities.		96,000
Total Non-Federal Costs	$8,980,000	$ 111,000

STATUS OF LOCAL COOPERATION: The local sponsor, the City of Cape Girardeau, Missouri, is strongly supportive of the project. A Local Cooperation Agreement (LCA) will be signed in January 1990.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $24,880,000 is an increase of $5,230,000 from the latest estimate ($19,650,000) presented to Congress (FY 90). This increase includes the following items:

Item	Amount
Post Contract Award and Other Estimating Adjustments	$3,500,000
Price Escalation on Construction Features	1,730,000
Total	$5,230,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT AND COMPLIANCE WITH CLEAN WATER ACT: The Survey Report dated December 1983 contained an Environmental Assessment and Finding of No Significant Impact signed by the St. Louis District Commander. During preparation of the General Design Memorandum, the recommended plan was again examined and the conclusion that the project will have no significant adverse environmental impact was upheld. The survey report also contained an evaluation under Section 404 (b)(1) of the Clean Water Act. The project was in full compliance. Prior to construction of the project it will be necessary to readdress the requirements of Sections 401 and 404 of the Clean Water Act which requires state certification.

OTHER INFORMATION: Funds to initiate engineering and design were appropriated in FY 87 and funds to initiate construction were appropriated in FY 90.

LOWER MISSISSIPPI VALLEY DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation.

a. Channels and Harbors

The program request of $101,422,000 provides for essential maintenance on 24 channel and harbor projects named in the list which follows. The work to be accomplished under this activity consists of maintenance of navigation channels and harbors and anchorages of coastal harbors and waterways by means of dredging, repair, and operation of navigation structures; all as authorized in the laws adopting river and harbor projects.

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
ARKANSAS	$	$	$	
Helena Harbor	301,000	418,000	460,000	Variation in dredging requirements.
Osceola Harbor	302,000	523,000	575,000	Variation in dredging requirements.
White River	2,295,000	2,498,000	2,243,000	Variation in dredging requirements.
ILLINOIS				
Mississippi River Between Ohio and Missouri Rivers	22,723,000	16,251,000	10,971,000	Increased dredging in FY 89 & FY 90 due to drought. Repair embedded metals, replace asbestos products and procure auxiliary lock lift gate chains in FY 89.

LOWER MISSISSIPPI VALLEY DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991
1. Navigation (Cont'd)
  a. Channels and Harbors (Cont'd)

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
KENTUCKY	$	$	$	
Hickman Harbor	327,000	464,000	513,000	Variation in dredging requirements.
LOUISIANA				
Atchafalaya River, Bayous Chene, Boeuf and Black	9,762,000	4,320,000	3,607,000	Variation in dredging requirements.
Barataria Bay Waterway	190,000	948,000	1,900,000	Variation in dredging requirements.
Bayou LaFourche	38,000	370,000	0	Variation in dredging requirements.
Calcasieu River and Pass	10,865,000	4,450,000	3,475,000	Variation in dredging requirements.
Freshwater Bayou	919,000	760,000	2,535,000	Dredge Lock to Gulf, dewater Freshwater Bayou Lock and replace warehouse in FY 91.
Gulf Intracoastal WAterway	10,011,000	11,550,000	10,890,000	Variation in dredging requirements.
Houma Navigation Channel	247,000	2,280,000	165,000	Variation in dredging requirements.
Lake Providence Harbor	282,000	209,000	258,000	Variation in dredging requirements.
Madison Parish Port	0	63,000	68,000	Variation in dredging requirements.
Bayou Segnette W/W	53,000	0	188,000	Variation in dredging requirements.

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LOWER MISSISSIPPI VALLEY DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (Cont'd)

a. Channels and Harbors (Cont'd)

OBLIGATIONS

Project	Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
LOUISIANA (Cont'd)				
Waterway Empire to Gulf of Mexico	33,000	0	232,000	Variation in dredging requirements.
Mississippi River, Baton Rouge to Gulf of Mexico	46,757,000	42,426,000	52,000,000	Variation in dredging requirements. Maintenance of the enlarged 45 foot channel from the Gulf of Mexico to Donaldsonville, LA, including New Orleans Harbor; restore East Jetty, Southwest Pass in FY 91.
Mississippi River - Gulf Outlet	4,491,000	6,100,000	7,280,000	Variation in dredging requirements.
Mississippi River, Outlets at Venice	1,988,000	3,090,000	2,040,000	Variation in dredging requirements. Dredge two outlets in FY 90.
MISSISSIPPI				
Claiborne County Port	0	150,000	149,000	Variation in dredging requirements.
Mouth of Yazoo River	0	164,000	164,000	Variation in dredging requirements.
Rosedale Harbor	109,000	376,000	379,000	Variation in dredging requirements.
Yazoo River	0	260,000	275,000	Variation in snagging and clearing. Dredging study in FY 90. First year dredging in FY 91.

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LOWER MISSISSIPPI VALLEY DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (Cont'd)
    a. Channels and Harbors (Cont'd)

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
MISSOURI	$	$	$	
Caruthersville Harbor	264,000	344,000	380,000	Variation in dredging requirements.
TENNESSEE				
Wolf River Harbor	1,114,000	614,000	675,000	Variation in dredging requirements.
Projects Periodically Maintained	188,000	46,000		
TOTAL - Channels and Harbors	113,259,000	98,674,000	101,422,000	

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LOWER MISSISSIPPI VALLEY DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (Cont'd)
   b. Locks and Dams

The program request of $24,972,000 provides for the operational requirements of nine canalized waterways including portions of the Illinois Waterway and Mississippi River projects within the Division boundaries. Requirements include: operation and ordinary maintenance of project facilities; labor, supplies, materials and parts for day-to-day functioning, and periodic maintenance, repairs, and replacements.

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
ARKANSAS	$	$	$	
Ouachita and Black River, AR and LA	4,890,000	4,815,000	4,831,000	Variation in dredging requirements.
ILLINOIS				
Illinois Waterway (LMVD)	372,000	591,000	1,647,000	Variation in dredging requirements. Initiation of riverlands management in FY 90.
Mississippi River Between Missouri River and Minneapolis, MN (LMVD)	9,078,000	9,343,000	9,935,000	Variation in dredging requirements and dike and revetment repairs. Repair slush concrete submergible dike; rehabilitate Delong Piers in FY 89. Rehabilitate lower portion of Dam 24 tainter gates FY 90. Replace embedded metals in Lock 24 and Lock 25 in FY 91.
Kaskaskia River	1,289,000	884,000	1,343,000	Variation in dredging requirements. Replace guidewall timbers in FY 89.

LOWER MISSISSIPPI VALLEY DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (Cont'd)

b. Locks and Dams (Cont'd)

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
LOUISIANA	$	$	$	
Bayou Teche	331,000	126,000	1,065,000	Variation in dredging requirements.
Mermentau River	1,438,000	1,350,000	1,320,000	Dewater Schooner Bayou Control Structure in FY 89.
Bayou Teche and Vermilion, LA	0	0	275,000	Variation in dredging requirements.
Red River Waterway, Mississippi River to Shreveport, LA	3,688,000	4,438,000	3,567,000	Variation in dredging requirements.
MISSISSIPPI				
Pearl River	1,076,000	844,000	1,049,000	Variation in dredging requirements.
TOTAL - Locks and Dams	22,162,000	22,391,000	24,972,000	
TOTAL - NAVIGATION	135,421,000	121,065,000	126,394,000	

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LOWER MISSISSIPPI VALLEY DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control
   a. Reservoirs

The program request of $11,816,000 for the operation and maintenance of eight flood control reservoir projects provides the amount necessary for operational requirements. Annual requirements are for the necessary operation and ordinary maintenance of project facilities; labor, supplies, materials and parts required for day-to-day functioning of the projects; and contract law enforcement. The requested amount also includes application of special recreation user fees for recreation areas.

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
ILLINOIS	$	$	$	
Carlyle Lake	2,904,000	2,228,000	3,365,000	Variation in recreation facility maintenance.
Lake Shelbyville	4,380,000	3,615,000	4,157,000	Increased recreation facility maintenance in FY 89; commercial activity study in FY 90. Renovate comfort stations in FY 91.
Rend Lake	3,112,000	3,664,000	3,426,000	Install land treatment system and repair main dam FY 90.
LOUISIANA				
Bayou Bodcau Reservoir	416,000	335,000	368,000	Repairs to dam in FY 89.
Caddo Lake	111,000	119,000	97,000	Recreation facility repairs in FY 89 and FY 90.
Wallace Lake	63,000	141,000	156,000	Repairs to control structure in FY 90 and FY 91.

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LOWER MISSISSIPPI VALLEY DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs (Cont'd)

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
	OBLIGATIONS			
MISSISSIPPI	$	$	$	
Grenada Lake	0	0	100,000	Recreation facility repairs using Special Recreation Use Fee.
MISSOURI				
Wappapello Lake	102,000	95,000	147,000	Recreation facility repairs using Special Recreation Use Fee.
Other Projects Maintained Periodically	470,000	70,000	0	
TOTAL - Reservoirs	11,558,000	10,267,000	11,816,000	

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LOWER MISSISSIPPI VALLEY DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

b. Channel Improvements, Inspections and Miscellaneous Maintenance

The program request of $1,061,000 provides for inspection of completed works during the budget year.

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
	$	$	$	
Bayou Pierre, LA	21,000	36,000	38,000	
Inspection of Completed Works	902,000	1,031,000	1,023,000	Variation in inspections.
TOTAL - Channel Improvements, Inspections & Misc. Maintenance	923,000	1,067,000	1,061,000	
TOTAL - FLOOD CONTROL	12,481,000	11,334,000	12,877,000	

29 JAN 1990

LOWER MISSISSIPPI VALLEY DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

3. Multiple Purpose Power Projects

The program request of $14,166,000 provides for the operation and maintenance of 4 multiple purpose projects. Annual requirements are for the necessary operation and ordinary maintenance of project facilities, labor, supplies, materials and parts required for day-to-day functioning of the project; and contract law enforcement. The requested amount also includes application of special recreation use fees.

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
ARKANSAS	$	$	$	
Blakely Mt. Dam-Lake Ouachita	3,962,000	3,000,000	2,997,000	Repair recreation facility in FY 89.
DeGray Lake	3,040,000	3,010,000	2,955,000	
Narrows Dam-Lake Greeson	2,220,000	2,286,000	2,745,000	Remove asbestos, upgrade remote monitoring equipment in power house.
MISSOURI				
Clarence Cannon Dam and Reservoir	4,815,000	3,350,000	5,469,000	Cavitation repairs, paint intake gates and road repairs in FY 89. Variation in recreation facility maintenance; commercial activity study in FY 91.
TOTAL - MULTIPLE PURPOSE	14,037,000	11,646,000	14,166,000	

LOWER MISSISSIPPI VALLEY DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

4. Protection of Navigation

The program request shown provides for accomplishing the work necessary for the eradication of aquatic plants and project condition surveys.

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
	OBLIGATIONS			
	$	$	$	
Aquatic Plants Growth, LA	1,548,000	1,500,000	1,525,000	
Project Condition Surveys	156,000	155,000	156,000	
TOTAL - PROTECTION OF NAVIGATION	1,704,000	1,655,000	1,681,000	
GRAND TOTAL - LOWER MISSISSIPPI VALLEY DIVISION	163,643,000	145,700,000	155,118,000	

29 JAN 1990

Justification of Estimate for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1991

SUMMARY: Mississippi River Commission

FLOOD CONTROL, MISSISSIPPI RIVER AND TRIBUTARIES, AR, IL, KY, LA, MO, MS & TN

	FY 1990 Allocation	FY 1991 Request	INCREASE OR Decrease
General Investigations	2,750,000	2,685,000	- 65,000
Surveys	(1,232,000)	(1,070,000)	(- 162,000)
Preconstruction Engineering and Design	(1,518,000)	(1,615,000)	(97,000)
Construction	234,413,000	225,660,000	- 8,753,000
Dam Safety Assurance	550,000	555,000	5,000
Maintenance	123,150,000	121,000,000	- 2,150,000
Less Reduction for Savings and Slippage	- 24,863,000	- 15,400,000	9,463,000
Less Sequestration in Accordance with Gramm-Rudman-Hollings Act	- 4,704,000	0	4,704,000
TOTAL	331,296,000	334,500,000	3,204,000

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN, Fiscal Year 1991

1. SURVEYS - NEW

   a. Navigation Studies: None.

   b. Flood Damage Prevention Studies: None.

   c. Shoreline Protection Studies: None.

   d. Special Studies: None.

   e. Comprehensive Studies: None.

2. SURVEYS - CONTINUING

   a. Navigation Studies: None.

   b. Flood Damage Prevention Studies: The amount of $775,000 is requested for the continuation of three studies.

ARKANSAS

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete FY 91 ($)
St. Francis River, AR & MO (Fish and Wildlife)	1,120,000	172,000	48,000	350,000	550,000

The area to be studied is the St. Francis River Basin, primarily in Iron, Madison, Wayne, Stoddard, New Madrid, Pemiscot, and Dunklin Counties in Missouri and Clay, Craighead, Greene, Mississippi, Poinsett, Cross, Crittenden, Lee, and St. Francis Counties in Arkansas. Except for Iron, Madison, and Wayne counties in the Ozark highlands, the area lies within the alluvial valley of the Mississippi River which is highly developed for agricultural purposes. The principal consideration of this study will be to determine the need for measures in the interest of fish and wildlife conservation and related recreational use. Agricultural interests wish to use all suitable lands for farming, while fish and wildlife, recreation, and conservation interests desire to preserve as much of the remaining timber and swamplands as possible. The study has not progressed to the point of identification of a project sponsor. However, the States of Missouri and Arkansas have indicated a strong interest in this study and would likely consider applicable cost sharing for the Feasibility Phase contingent upon the results of the Federally funded reconnaissance study.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN, Fiscal Year 1991

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete FY 91 ($)

Fiscal Year 1990 funds are being used to continue the reconnaissance study. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase of study. The preliminary estimated cost of the feasibility phase is 1,096,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	1,668,000
Reconnaissance Phase (Federal)	572,000
Feasibility Phase (Federal)	548,000
Feasibility Phase (Non-Federal)	548,000

The reconnaissance phase is scheduled for completion in July 1991. The feasibility study is scheduled for completion in September 1994.

Southeast Arkansas Study, AR	760,000	0	300,000	75,000	385,000

The study area is bounded on the east by the Mississippi River levees, on the northeast by the Arkansas River levees, on the west by Bayou Bartholomew and on the south by the Arkansas-Louisiana State line. Counties included in the study area are Jefferson, Lincoln, Drew, Ashley, Chicot, and Desha. Documentation reports of flooding form November 1982 through January 1983 indicate damages in excess of $47 million to approximately 1,170,000 acres of primarily agricultural lands in the Boeuf-Tensas Basin, in which this study area is located. Extensive agricultureal farming of primary crops such as rice, soybeans, cotton, and catfish has heavily utilized ground-water resources in the area. Water demand for rice irrigation increased from about 100 million gallons per day in 1965 to over 600 million gallons per day in 1980. This study will address the current flooding and agricultural water supply problems and needs. Area-wide concerns have been expressed by local interests, state officials, and the United States congressional delegation associated with and representing Arkansas. The impact of inadequate agricultural water supply for farming purposes was highlighted by the drought of 1988.

Fiscal Year 1990 funds are being used to fully fund the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $920,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN, Fiscal Year 1991

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete FY 91 ($)

Total Estimated Study Cost	$1,220,000
Reconnaissance Phase (Federal)	300,000
Feasibility Phase (Federal)	460,000
Feasibility Phase (non-Federal)	460,000

The reconnaissance phase is scheduled for completion in May 1991. The feasibility study is scheduled for completion in May 1994.

MISSOURI

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete FY 91 ($)
Birds Point - New Madrid Floodway, Mississippi County, MO	1,430,000	560,000	285,000	350,000	235,000

The study area is located on the right descending bank of the Mississippi River in Mississippi and New Madrid Counties, Missouri. The floodway, an area of approximately 203 square miles, is about 33 miles long and 10 miles wide, is enclosed by the Mississippi River Project levees except for an authorized but not yet constructed 1,500 foot closure at the lower end, and is designed to pass 550,000 cubic feet per second of the total project design flood discharge of 2,360,000 cubic feet per second in this reach of the river at a stage of 62.5 feet at Cairo, Illinois. Operation of the floodway would occur only as absolutely essential to provide authorized protection to areas outside the floodway. Construction of the floodway resulted in reduction of Mississippi River Levee heights through this reach of the Mississippi River. Operation of the floodway is necessary to prevent flooding of Hickman, Kentucky; Cairo, Illinois; the Upper St. Francis Levee on the Mississippi River; a portion of northwest Tennessee; Mound City, Illinois; Mounds, Illinois; Reevesville, Illinois, and adjacent communities; and, Paducah, Kentucky, on the Ohio River. Converesly, local interests maintain that operation of the floodway would have a devastating effect on the estimated 3,000 Missouri citizens who live in or near the floodway area, the arable land, and the agri-business infrastructure. Scour and sediment deposition are definite impacts to the operation of the floodway and approximately 2,300 structures, worth approximately $24 million, will sustain damages. Annual agricultural crop production within the floodway has an estimated value of approximately $11 million. Support for the study has been expressed by the Governor of Missouri, Missouri Department of Conservation, and Missouri Department of Public Safety. This study will assess the alternatives to the operation of the floodway in the interest of flood control, navigation and allied purposes.

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete FY 91 ($)

Fiscal Year 1990 funds are being used to initiate the feasibility phase of study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,740,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,300,000
Reconnaissance Phase (Federal)	560,000
Feasibility Phase (Federal)	870,000
Feasibility Phase (Non-Federal)	870,000

The reconnaissance phase is scheduled for completion in March 1990. The feasibility study is scheduled for completion in September 1992.

TOTAL - Flood Damage Prevention Studies	3,310,000	732,000	633,000 1/	775,000	1,170,000

c. Shoreline Protection Studies: None.

d. Special Studies: None.

e. Comprehensive Studies: None.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN, Fiscal Year 1991

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete FY 91 ($)
f. Collection and Study of Basic Data	N/A	N/A	201,000	295,000	N/A

Surveys, Gages, and Observations. The funds requested for Fiscal Year 1991 are for collection of essential basic data which are subsequently used in the planning and design of flood control projects. The data collected under this activity are for authorized projects or units thereof for which funds have not been appropriated. The data to be collected will consist of information on stream flow, rainfall, floods, and other items of related hydrologic nature.

TOTAL - Collection and Study of Basic Data	N/A	N/A	201,000	295,000	N/A
TOTAL - SURVEYS - Continuing 1/	3,310,000 1/	732,000 1/	834,000 1/	1,070,000	1,170,000 1/

1/ Excludes Collection and Study of Basic Data which is a continuing program.

3. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - NEW START

a. Navigation: None.

b. Flood Control: The amount of $430,000 is requested to initiate one preconstruction engineering and design project.

ARKANSAS

Eastern Arkansas Region	1,300,000	0	0	430,000	870,000

The project area includes the drainage basins of the Bayou Meto, Lower White River, Cache River, Big Creek, L'Anguille River and the St. Francis River in eastern Arkansas. It is located in the Alluvial Valley of the Mississippi River and comprises approximately 13,400 square miles. This includes all or parts of 24 counties in northeast Arkansas. The study is a multipurpose study with primary emphasis on flood control, agricultural water supply and conservation. Headwater flooding of agricultural lands and depletion of the region's groundwater reserves are the major problems. The feasibility study is scheduled to be completed in January 1991. Plans of improvement are presently being formulated at this time. Firm

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN, Fiscal Year 1991

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete FY 91 ($)

benefit and cost data are not yet available for feasibility level plans. Plans formulated in reconnaissance studies had benefit-cost ratios which ranged from 1.0 to 2.5. Potential sponsors for projects which may result from these studies are the White River Basin Commission, Newport, Arkansas, the White River Regional Irrigation Water Distribution District, Stuttgart, Arkansas and the various County Conservation Districts in the study area.

Studies have not advanced to a point of submitting a project forward for authorization. Cost sharing requirements will be in accordance with the Water Resources Development Act of 1986.

Fiscal Year 1990 funds are being used to complete the feasibility phase study. Fiscal Year 1991 funds will be used to initiate preconstruction engineering and design studies including detailed engineering, environmental and economic studies. Completion of preconstruction engineering and design studies is scheduled for September 1993.

TOTAL FLOOD CONTROL	1,300,000	0	0	430,000	870,000

c. Shoreline Protection: None.

d. Multiple Purpose Power: None.

TOTAL PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES - NEW	1,300,000	0	0	430,000	870,000

4. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - (Continuing)

a. Navigation: None.

b. Flood Control: The amount of $1,185,000 is requested for Fiscal Year 1990 for continuation of three projects.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN, Fiscal Year 1991

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete FY 91 ($)
ARKANSAS					
Helena, AR and Vicinity	1,500,000	300,000	475,000	500,000	225,000

This is an urban flood control project in east Arkansas on the west bank of the Mississippi River. The drainage basin is entirely within Phillips County, Arkansas, (1980 population 34,772) and is approximately 3,500 acres in area. The entire downtown business district of Helena is located within the 100-year flood plain. Major floods occurred in Helena during April 1973 and May 1974. The area was declared a disaster area in 1973 with damages in the millions. Damages were estimated at $3,200,000 in the 1974 flood. The authorized project includes a 223 cubic feet per second pumping station and 1.85 miles of channel improvement to contain the 10-year frequency storm. A 7 foot by 7 foot gated culvert is also included to prevent back flows from Long Lake. The estimated project construction cost is $17,700,000 and the average annual benefits are $1,492,000, of which $1,396,000 are for flood control, $90,000 for area redevelopment, and $6,000 for betterments. The current benefit to cost ratio is 1.2 to 1.

The project was authorized for construction by the Water Resources Development Act of 1986 with the following non-Federal cost-sharing requirements. Local interests are required to provide lands, easements, rights-of-way and dredged material disposal areas presently estimated at $1,045,000, and modify or relocate buildings, utilities, roads, and other facilities, excluding railroad bridges, where necessary in the construction of the project, presently estimated at $868,000 and provide a minimum cash contribution of not less than 5 percent to total project costs assigned to flood control, presently estimated $885,000. Local interests are also required to pay an additional cash amount to achieve a minimum non-Federal total project cost of 25 percent currently estimated at $1,602,000. Costs for operation, maintenance, and replacement after project construction are the responsibility of local interests, presently estimated at $58,000 annually.

Fiscal Year 1990 funds are being used to continue preconstruction engineering and design including detailed engineering, environmental and economic studies. Fiscal year 1991 funds will be used to complete detailed engineering, environmental and economics studies and a General Design Memorandum. Preconstruction engineering and design is scheduled to be completed in March 1992.

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete FY 91 ($)
Lower White River (BIG CREEK AND TRIBUTARIES), AR	2,200,000	1,012,000	380,000	385,000	423,000

The project is located in eastern Arkansas in St. Francis, Lee, Monroe, and Phillips Counties. The drainage basin is about 55 miles long with a maximum width of 28 miles and has a total area of about 1,060 square miles. Big Creek rises near the eastern White River watershed divide northeast of Brinkley, Arkansas, and flows in a southeasterly direction about 50 miles to Poplar Grove, then southwesterly for about 40 miles to join the White River at miles 51.9. Local interests, through organized drainage districts, have constructed systems of lateral drainage ditches to replace several of the streams tributary to Big Creek. Lack of an adequate outlet rendered the improved section inoperative and contributed to a general deterioration of the entire system. Most of the ditches have become clogged with debris and vegetative growth and are generally ineffective. The plan of improvement recommended in the General Design Memorandum dated April 1972 consisted of enlargement and minor realignment of 68 miles of Big Creek and 63.8 miles of its upper tributary channels to provide protection from all floods up to the 10-year annual frequency of occurrence. The plan also provided for the installation of low weirs in the stream channels. Alteration would be required on five railroad bridges, eight state highway bridges, 34 county road bridges, and one U.S. Highway. The plan was presented to the public who expressed a number of conflicting views that could not be resolved. Studies were suspended in 1976 until such time that an agreement could be reached on an acceptable plan. Due to local interest expressed in the last few years for resumption of studies on the project, a reformulation study was initiated in FY 1988 to identify a balanced plan of improvement and to resolve major disagreements.

The estimated construction cost of the authorized project is $60,800,000; the average annual benefits are $1,990,000, all for flood control; the benefit cost ratio is 2.2 to 1. The reformulation studies will determine if an economical project can be formulated which will resolve the conflicting views of the public.

The project was authorized for construction by the Flood Control of 1965. In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements, rights-of-way, and required disposal areas, presently estimated at $3,346,000; modify or relocate buildings, utilities, roads, and other facilities, where necessary in the construction of the project, presently estimated at $8,061,000; make a cash contribution of not less than 5 percent of the costs allocated to flood control presently estimated at $3,040,000; and bear all costs of operation, maintenance and replacements, presently estimated at $220,000 annually.

Fiscal Year 1990 funds are being utilized to continue reformulation studies and initiate environmental impact and fish and wildlife studies. Fiscal Year 1991 funds will be used to complete the reformulation studies and complete the environmental impact and fish and wildlife studies. Preconstruction engineering and design is scheduled to be completed in September 1993.

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete FY 91
Whiteman's Creek, Arkansas	825,000	0	100,000	300,000	425,000

This is an urban flood control project located in the St. Francis Basin in northeastern Arkansas, east of Crowley's Ridge. Whiteman's Creek and related streams provide drainage for Jonesboro and portions of Craighead County, Arkansas. Repeated flooding of streets, residences, businesses and public facilities within the urban area, together with more frequent agricultural flooding in the downstream rural areas are major concerns. The location of the area on the eastern side of Crowley's Ridge where there are relatively steep slopes, urbanization and inadequate channel capacities contributes to increased frequency and stages of flash flooding. One of the worst floods in recent history occurred in January 1969 resulting in widespread flooding to residences in the Nettleton area along Whiteman's and Turtle Creeks in southeast Jonesboro. With current development, a similar flood would result in damage to approximately 350 residences, 33 commercial buildings, industrial and public buildings with damages estimated at $832,000 at October 1989 price levels.

An economically feasible and implementable plan has been identified which includes approximately 18 miles of channel improvement on Whiteman's Creek, Turtle Creek, Higginbottom Creek, Lateral No. 3, Moore's Ditch, and Little Bay Ditch. Also included were two miniparks and a hiking/biking trail along Whiteman's and Turtle Creeks. These improvements will provide complete protection from the 10-year frequency flood event, and are estimated to cost $8,900,000 with a benefit-to-cost ratio of 1.5 to 1.

The project is not authorized. The following cost sharing would be required by the Water Resources Development Act of 1986. Local interests are required to provide lands, easements, rights-of-way and dredged material disposal areas presently estimated at $1,973,000; modify or relocate buildings, utilities, roads, and other facilities, excluding railroad bridges, where necessary in the construction of the project, presently estimated at $1,897,000 provide one half of the separable and joint costs allocated to recreation, presently estimated at $170,000; and, make a cash contribution of not less than 5 percent of total project costs assigned to flood control, presently estimated at $430,000. Local interests would also be responsible for operation, maintenance, and replacement of project features at an average annual cost of $6,000.

Fiscal Year 1990 funds are being used to initiate preconstruction engineering and design studies including detailed surveys. Fiscal Year 1991 funds will be used to continue the General Design Memorandum including detailed hydraulic design, specific right-of-way requirements, and economic and environmental studies. Preconstruction engineering and design is scheduled for completion in September 1993.

Study	Total Estimated Federal Cost ($)	Allocation Prior to FY 90 ($)	Allocation FY 90 ($)	Tentative Allocation FY 91 ($)	Additional to Complete FY 91 ($)
TOTAL FLOOD CONTROL	4,525,000	1,312,000	955,000	1,185,000	1,073,000
c. Shoreline Protection: None.					
d. Multiple Purpose Power: None.					
TOTAL - PRECONSTRUCTION ENGINEERING AND AND DESIGN ACTIVITIES - NEW AND CONTINUING	5,825,000	1,312,000	955,000	1,615,000	1,943,000
GRAND TOTAL - SURVEYS AND PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES	9,135,000	2,044,000	1,850,000	2,685,000	3,113,000

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MO, MS, & TN - Construction

PROJECT: Mississippi River and Tributaries, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri and Tennessee (Continuing)

LOCATION: The comprehensive project for Flood Control, Mississippi River and Tributaries will provide flood protection for the alluvial valley of the Mississippi River from Cape Girardeau, Missouri, to the Head of Passes, Louisiana; and for improvement of the Mississippi River for navigation from Cairo, Illinois, to Baton Rouge, Louisiana. It includes the main river, the basins of the St. Francis, White, Arkansas, Tensas, Red, Yazoo and Atchafalaya Rivers, the alluvial lands around Lake Pontchartrain, and the tributary streams in Western Tennessee and Kentucky. The completed project will provide protection against a project design flood, which will amount to a flow of 2,360,000 cubic feet per second at Cairo, Illinois, and 3,000,000 cubic feet per second at the latitude of Old River above Baton Rouge, Louisiana. This flow will divide near this point with 1,500,000 cubic feet per second going down the Atchafalaya River and the West Atchafalaya and Morganza Floodways. The remaining 1,500,000 cubic feet per second will continue down the Mississippi River to a point above New Orleans, where 250,000 cubic feet per second will be diverted through the Bonnet Carre Spillway to Lake Pontchartrain. The flow past New Orleans to the Gulf of Mexico will then be 12,250,000 cubic feet per second, which is the river's safe capacity.

The control of this large quantity of water will be accomplished by every practical means of flood control, especially reservoirs, levees, cutoffs, revetments, and floodways.

The justification of the funds requested is presented on separate sheets for each major feature of the project. These major features are termed "project" for the purposes of reporting, accounting, and fiscal control, and, where appropriate, are further separated into their separable units.

AUTHORIZATION: Flood Control Act of 1928, as amended.

SUMMARIZED FINANCIAL DATA		Accum % of Est Fed Cost
Total Estimated Cost	$10,295,598,000	
Allocations to 30 September 1989	4,776,870,000	47
Allocations for FY 1990	206,401,000	
Allocations through FY 1990	4,983,271,000	49
Allocations Requested for FY 1991	226,215,000	

Scheduled Balance to Complete After FY 1991	4,228,415,000
Unscheduled Balance to Complete After FY 1991	857,697,000

COST ESTIMATES: The current Federal cost estimate of $10,295,598,000 for the Mississippi River and Tributaries project is an increase of $401,997,000 over the latest estimate ($9,893,601,000) submitted to Congress. Details of the changes for features included in the FY 1991 budget request are shown under the individual features on the following pages of the Justification Data.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN - Construction

PROJECT: Mississippi River Levees, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee (Continuing)

LOCATION: The Mississippi River Levee system on the west bank extends from Allenville, Missouri, on the Little River Diversion Channel generally southward to the vicinity of Venice, Louisiana, and on the east bank from Hickman, Kentucky, to opposite Venice, Louisiana, except where interrupted by hills and tributary streams. Included in the system are the levees which protect Mounds, Mound City and Cairo, Illinois, and the New Madrid Levee and Floodgate.

DESCRIPTION: The plan of improvement provides for raising, strengthening, and in some cases, extending existing levees to provide protection against the project flood. This feature includes 1,518.4 miles of levees and 14.8 miles of floodwall. All work is scheduled.

AUTHORIZATION: Flood Control Acts of 1928, 1936, 1938, 1941, 1946, 1950, 1954, 1962, 1965, 1968, and PL 92-222.

REMAINING BENEFIT-REMAINING COST RATIO: 37.1 to 1 at 2-1/2 percent. The benefit-cost ratio is based on all features which comprise the Main Stem system of the Mississippi River and Tributaries project.

TOTAL BENEFIT-COST RATIO: 7.9 to 1 at 2-1/2 percent.

INITIAL BENEFIT-COST RATIO: This project feature of the Main Stem system was authorized in Fiscal Year 1928 and initial construction funds were provided in Fiscal Year 1928. The authorized comprehensive review of the Mississippi River and Tributaries project, contained in House Document 308/88/2, as updated to reflect 1965 conditions and price levels, is considered to be the base estimate for the Main Stem system. The benefit-cost ratio for the Main Stem components computed for the base estimate was 7.9 to 1.

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in October 1979 at 1979 price levels. The latest comprehensive analysis was conducted in 1974. The 1979 analysis is the same as the 1974 analysis except that certain overall undocumented benefit categories were eliminated and 1979 prices were used. To use the 1974 analysis would have the effect of further increasing the benefit-cost ratio.

SUMMARIZED FINANCIAL DATA

SUMMARIZED FINANCIAL DATA				Accum. % of Est Fed Cost
Estimated Total Appropriation Requirement			$1,310,000,000	
Future Non-Federal Reimbursement			674,000	
Estimated Federal Cost (Ultimate)			1,309,326,000	
Estimated Non-Federal Cost			$ 66,022,000	
Cash Contribution		$ 722,000		
Other Costs		64,626,000		
Reimbursement		674,000		
Recreation Facilities	$674,000			
Total Estimated Project Cost			$1,376,022,000	
Allocations to 30 September 1989			623,102,000	
Conference Allowance for FY 1990			24,400,000	
Allocation for FY 1990			15,201,000 1/	
Allocations through FY 1990			638,303,000	49
Allocation Requested for FY 1991			20,300,000	50
Scheduled Balance to Complete After FY 1991			651,397,000	
Unscheduled Balance to Complete After FY 1991			0	

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	86	Aug 2008

PHYSICAL DATA

Channels and Canals	72 miles
Levees:	
Average height	20-35 feet
Length	1,518.4 miles
Floodwalls:	
Average Height	14-23 feet
Length	14.8 miles
Levee Berms	623.4 miles
Levee Roads	1,490.4 miles
Pumping Stations	5

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1/ Reflects $1,681,000 reduction assigned as savings and slippage, $318,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $7,200,000 reprogrammed from the project.

JUSTIFICATION: The Mississippi River Levee System provides protection to 23,620 square miles and partial protection to an additional 3,780 square miles in the alluvial valley subject to flooding by the project flood. The alluvial valley is over 650 miles long and varies in width from 20 to 90 miles. Numerous railroads, highways, and airfields connecting the major transportation centers lie within the protected area as do several major transcontinental communication routes. In addition to the vast highly developed and productive agricultural areas, the levees afford protection to urban areas and many large and varied industries whose products have a vital bearing on the welfare, economy, and defense capabilities of this country.

The Mississippi River Levees project is one of the Main Stem components which comprise the plan of improvement for the control of floods on the Mississippi River. The contribution of each element to the overall plan is inseparably related to that made by the others. Therefore, their benefits are inseparable and a composite benefit-cost ratio for the Main Stem components is necessary. The components are: Mississippi River Levees, Channel Improvement, South Bank Arkansas and South Bank Red River Levees, the Atchafalaya Basin, Atchafalaya Floodway System, Old River, and a few miscellaneous items. The benefit-cost ratio was derived by measuring the total benefits credited to these Main Stem components against their total cost. The total average annual benefits for the composite of Main Stem features are as follows:

Annual Benefits	Amount
Flood Control	$2,618,860,000
Navigation	790,162,000
Area Redevelopment	11,307,000
Recreation	3,018,000
Total	$3,423,347,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate:	
West Memphis, AR, Berm	$1,500,000
Baton Rouge Front, Phase I, LA, Levee Enlargement, Mile 230 to Mile 227-L	480,000
Lower Edgard, LA, Levee Enlargement, Mile 137 to Mile 127-R	1,100,000
1st Enlargement, Station 8-378	229,000
Initiate and Complete:	
Jackson-Thalia Phase III, LA, Floodwall, Mile 97.2 to Mile 95.6-L	697,000
Gretna Phase IIB, LA, Levee Enlargement, Mile 98.3 to Mile 95-R	584,000
New Orleans District Floodwall, Phase IIA	100,000

Continue:	
Lands and Damages	75,000
Avondale, LA, Floodwall, Mile 108 to Mile 107-R	1,496,000
Welcome-Moonshine, LA, Levee Enlargement, Mile 165 to Mile 155.7-R	1,200,000
1st Enlargement, Station 378-624	160,000
1st Enlargement, Station 764-996	100,000
Miscellaneous Relocations	279,000
Complete:	
Canoe Lake Culverts	95,000
10-28th Street Pumping Station, Pump Repair, IL	77,000
10-28th Street Pumping Station, Station Repair, IL	114,000
Gretna Phase IIA, LA, Levee Enlargement, Mile 100.0 to Mile 98.3R	250,000
Harwood-Grand Lake, Item 516-R	981,000
Upper Edgard, LA, Levee Enlargement, Mile 143 to Mile 137-R	1,282,000
Port Allen, LA, Levee Enlargement, Mile 234 to Mile 228R	2,100,000
1st Enlargement, Station 624-764	111,000
Surveys and Layouts	165,000
Miscellaneous Hired Labor	121,000
Engineering and Design	4,892,000
Supervision and Administration	2,112,000
TOTAL	$20,300,000

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NON-FEDERAL COST: In accordance with the Flood Control Acts of 1928, 1936, 1938, 1941, 1946, 1950, 1954, 1962, 1965, 1968 and PL 92-222, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way and dredged material disposal areas.	$64,304,000	
Minor maintenance of all flood control works after their completion, except controlling and regulating spillway structures, including special relief levees; maintenance includes normally such matters as cutting grass, removal of weeds, local drainage and minor repairs to mainline river levees.		$1,025,000
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, and replacement of recreation facilities.	1,396,000	
Other (levee and revetment construction)	322,000	
Total Non-Federal Costs	$66,022,000	$1,025,000

STATUS OF LOCAL COOPERATION: It is estimated that local interests had spent approximately $292,000,000 for flood protection prior to the Act of 15 May 1928. After passage of the Act, the 37 levee districts along the Mississippi River adopted resolutions assuring the United States that the requirements of local cooperation will be met. These local interests have acquired all rights-of-way for work completed and underway and will try to provide the rights-of-way for work scheduled for Fiscal Year 1991. Some levee boards are having difficulty in providing rights-of-way when requested because of financial problems, even for construction work in areas where the existing levees are furtherest below the authorized grade. Supplemental assurances covering the requirements of the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970 (PL 91-646) have been accepted for Main Stem Mississippi River Levees in Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee.

Assurances of local cooperation for the recreation facilities at Warfield Point, Mississippi, were accepted on 14 October 1969. Supplemental assurances covering the River and Harbor Act of 1970 (PL 91-611) and PL 91-646 were accepted 7 August 1972. Assurances have not as yet been requested for the recreation facilities at Mississippi River State Park, Arkansas.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $1,310,000,000 is an increase of $30,000,000 from the latest estimate ($1,280,000,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$41,880,000
Design Changes	- 6,017,000
Post Contract Award and Other Estimating Adjustments	- 5,915,000
Price Escalation on Real Estate	52,000
Total	$30,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with the Council on Environmental Quality on 16 April 1976.

OTHER INFORMATION: Initial construction funds were appropriated in Fiscal Year 1928.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN - Construction

PROJECT: Channel Improvement, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri and Tennessee (Continuing)

LOCATION: The project is located in the Mississippi River and along its banks from the vicinity of Cairo, Illinois, to the Head of Passes, Louisiana, a distance of approximately 966 miles.

DESCRIPTION: The plan of improvement consists of stabilizing the banks of the river in a desirable alignment and obtaining the most efficient flow characteristics for it for flood control and navigation by means of revetments, dikes, foreshore protection, and dredging. All work is scheduled.

AUTHORIZATION: Flood Control Acts of 1928, 1936, 1938, 1941, 1944, 1962, 1965, 1966, and 1970.

REMAINING BENEFIT-REMAINING COST RATIO: 37.1 to 1 at 2-1/2 percent. The benefit-cost ratio is based on all features which comprise the Main Stem system of the Mississippi River and Tributaries project.

TOTAL BENEFIT-COST RATIO: 7.9 to 1 at 2-1/2 percent.

INITIAL BENEFIT-COST RATIO: This project feature of the Main Stem system was authorized in Fiscal Year 1928 and initial construction funds were provided in Fiscal Year 1928. The authorized comprehensive review of the Mississippi River and Tributaries project, contained in House Document 308/88/2, as updated to reflect 1965 conditions and price levels, is considered to be the base estimate for the Main Stem system. The benefit-cost ratio for the Main Stem components computed for the base estimate was 7.9 to 1.

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in October 1979 at 1979 price levels. The latest comprehensive analysis was conducted in 1974. The 1979 analysis is the same as the 1974 analysis except that certain overall undocumented benefit categories were eliminated and 1979 prices were used. To use the 1974 analysis would have the effect of further increasing the benefit-cost ratio.

27-642 O—90—12

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$3,257,000,000	
Estimated Non-Federal Cost		1,471,000	
Cash Contributions	$1,384,000		
Other Costs	87,000		
Total Estimated Project Cost		$3,258,471,000	
Allocations to 30 September 1989		$1,777,103,000	
Conference Allowance for FY 1990		95,200,000	
Allocation for FY 1990		94,581,000 1/	
Allocations through FY 1990		1,871,684,000	57
Allocation Requested for FY 1991		109,875,000	61
Scheduled Balance to Complete After FY 1991		1,275,441,000	
Unscheduled Balance to Complete After Fy 1991		0	

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	84	Mar 2010

PHYSICAL DATA

Lands and Damages	19,135 acres
Revetments	1,085 miles
Dikes	339 miles
Dredging	As required
Foreshore Protection	160 miles
Pumping Station	1

1/ Reflects $6,559,000 reduction assigned as savings and slippage, $1,241,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $7,181,000 reprogrammed to the project.

JUSTIFICATION: The Mississippi River, with a drainage area of about 1,245,000 square miles, has a wide range of flow, increasing from an approximate minimum of 90,000 cubic feet per second (675,000 gallons per second) to a maximum of 2,345,000 cubic feet per second (17,587,000 gallons per second) which occurred in 1927 at the latitude of Red River Landing. The project flood is 3,000,000 cubic feet per second (22,500,000 gallons per second). Part of the tremendous energy of this volume of flowing water is directed toward a relentless attack on the banks of the river, causing the unprotected banks to cave into the river. As this caving progresses, the attack becomes more direct, the bendway moves in toward the levee, and more sediment is placed in the river and deposited downstream in the form of a sandbar. This bar gradually builds out into the channel and deflects the river's attack to the opposite bank. As the cycle is repeated the river tends to meander and lengthen. Revetment is placed against the banks of the river at locations where mainline levees are being threatened with destruction or where unsatisfactory alignment and channel conditions are developing. Revetment serves a three-fold purpose in that the river is prevented from encroaching on the Main Stem levees, excess material is kept out of the stream, and a favorable channel alignment and depth are maintained. An objective of the plan is to preserve favorable alignments and efficient cross-sectional areas and to prevent the river from creating new meander patterns. In wide reaches of the river, dikes are used to contract the channel width so as to produce a single efficient channel for navigation and to insure the flood carrying capacity of the river. Chutes and secondary channels are closed for the same purpose. Improvement dredging is employed to assist the river in removing natural obstructions which deflect the current into undesirable patterns of flow and to assist in developing an efficient channel. Foreshore protection is utilized to preserve the integrity of the Mississippi River Levees from attack by erosion of the batture. Erosion of the batture leads to steep slopes which, when undermined, result in considerable loss of batture and possible failure of the levee.

The Channel Improvement Project is one of the Main Stem components which comprise the plan of improvement for the control of floods on the Mississippi River. The contribution of each element to the overall plan is inseparably related to that made by the others. Therefore, their benefits are inseparable and a composite benefit-cost ratio for the Main Stem components is necessary. The components are: Mississippi River Levees, Channel Improvement, South Bank Arkansas and South Bank Red River Levees, the Atchafalaya Basin, Atchafalaya Floodway System, Old River and a few miscellaneous items. The benefit-cost ratio was derived by measuring the total benefits credited to those Main Stem components against their total cost. The total average annual benefits for the composite of Main Stem features are as follows:

Annual Benefits	Amount
Flood Control	$2,618,860,000
Navigation	790,162,000
Area Redevelopment	11,307,000
Recreation	3,018,000
Total	$3,423,347,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Revetments	$ 82,850,000
Dikes	20,825,000
Motor Vessel MISSISSIPPI	6,200,000
Total	$ 109,875,000

Revetments: The planned program consists of items of work for which funds will be required as follows:

Construction of Revetments	$ 74,010,000
Cultural Resources	60,000
Engineering and Design	5,875,000
Supervision and Administration	2,905,000
Total	$ 82,850,000

The items of revetment work are:	Approximate length in feet:
Slough Landing Neck, KY-TN	700
Laforge, MO	2,400
Barfield, AR	1,200
Cow Island Bend, TN (Upper)	1,300
Oldtown Bend, AR	3,000
Lake Concordia, MS	2,000
Red Store, LA	7,000
Racetrack Towhead, LA	2,000
Milliken Bend, LA	1,500
Morville, LA	3,000
Kempe Bend, LA	1,500
Ashland, MS-LA	4,000
Giles Cutoff, MS-LA	1,700
Glasscock Cutoff, MS-LA	2,000
Iowa Point, LA	6,000
Cottonwood Bar, MS	4,000
St. Gabriel, LA	4,000
Smoke Bend, LA	3,000
Destrehan, LA	10,000
Scarsdale, LA	8,000
Linwood, LA	3,000
Junior, LA	3,000
Bayou Lamoque, LA	6,000
Olga, LA	15,000
Reinforcement	26,300
Hog Point Trenchfill, LA	13,200

Dikes: The planned dike work consists of the following items:

Island 1, KY	$ 1,075,000
Wolf Island Bar, KY	1,075,000
Island 11, MO	1,725,000
Caruthersville-Linwood, MO	1,850,000
Keyes Point, TN	1,400,000
Bordeaux Point, MS	750,000
Below Knowlton, AR	500,000
Friars Point, MS	1,300,000
Island 86, AR	1,300,000
Baleshed Landing, MS	1,000,000
Bondurant Towhead, LA	800,000
Racetrack Towhead, LA	1,000,000
Below Racetrack, MS	1,000,000
Natchez Island, MS-LA	725,000
Hog Point	1,500,000
Permits and Crops Damage	10,000
Dike Reinforcement	650,000
Surveys and Layouts	50,000
Engineering and Design	2,125,000
Supervision and Administration	990,000
Total	$20,825,000

Motor Vessel MISSISSIPPI: The planned work consists of the following items:

Construction	$ 5,635,000
Engineering and Design	300,000
Supervision and Administration	265,000
Total	6,200,000

NON-FEDERAL COST: In accordance with Section 4 of the Flood control Act of 1944, as amended by Section 207 of the Flood Control Act of 1962, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments during Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas	$ 87,000	
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, and replacement of recreation facilities	1,384,000	$156,000
Total Non-Federal Costs	$1,471,000	$156,000

STATUS OF LOCAL COOPERATION: Assurances furnished by the Missouri Department of Conservation for the Dorena Recreation Facility were accepted 27 August 1971; assurances furnished by the Tennessee Department of Conservation for the Richardson Landing Recreation Facility were accepted 3 September 1976, and assurances furnished by the City of Memphis, Tennessee, for Volunteer Bicentennial Park were accepted 11 September 1975. Assurances furnished by the City of Osceola, Arkansas, for Lake Neark, Arkansas, are embodied in the contract for cost sharing approved by the Office of the Chief of Engineers on 19 September 1982. A Local Cooperation Agreement for the Ed Jones Boat Ramp with the State of Tennessee was signed 27 October 1988. A draft Local Cooperation Agreement for the Shelby Forest Boat Ramp will be provided the state of Tennessee for review and concurrence in February 1990.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $3,257,000,000 is an increase of $99,000,000 from the latest estimate ($3,158,000,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$81,914,000
Authorized Modifications	17,000,000
Post Contract Award and Other Estimating Adjustments	86,000
Total	$99,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with the Council on Environmental Quality on 16 April 1976.

OTHER INFORMATION: Initial construction funds were appropriated in Fiscal Year 1928.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Construction

PROJECT: Atchafalaya Basin, Louisiana (Continuing)

LOCATION: The project is located in south-central Louisiana below the latitude of Old River and west of and generally paralleling the Mississippi River. The Atchafalaya River flows through the middle of the basin.

DESCRIPTION: The plan of improvement consists of a leveed floodway about 15 miles wide and 110 miles long that extends generally from the latitude of Old River to the Gulf of Mexico. The upper half of the basin is divided by the leveed Atchafalaya River. The Morganza Floodway is to the east of the Atchafalaya River and has a capacity of 600,000 cubic feet per second, which is introduced into the floodway by a gated control structure. The West Atchafalaya Floodway, which is located to the west of the river, is placed into operation when the fuse plug sections are overtopped bringing flows from the river that will introduce 900,000 cubic feet per second into the lower basin. After passing through the floodways, the flood waters enter the Gulf of Mexico through the Lower Atchafalaya River at Morgan City and the Wax Lake Outlet channel constructed west of Patterson, Louisiana. All work is scheduled.

AUTHORIZATION: Flood Control Acts of 1928, 1934, 1936, 1938, 1941, 1946, 1950, and 1954.

REMAINING BENEFIT - REMAINING COST RATIO: 37.1 to 1 at 2-1/2 percent. The ratio is based on all features which comprise the Main Stem System of the Mississippi River and Tributaries project.

TOTAL BENEFIT - COST RATIO: 7.9 to 1 at 2 1/2 percent.

INITIAL BENEFIT - COST RATIO: This project feature of the Main Stem system was authorized in FY 1928 and initial construction funds were provided in FY 1928. The authorized comprehensive review of the Mississippi River and Tributaries project, contained in House Document 308/88/2, as updated to reflect 1965 conditions and price levels, is considered to be the base estimate for the Main Stem system. The benefit-to-cost ratio for the Main Stem components computed for the base estimate was 7.9 to 1.

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation approved in October 1979 at the 1979 price levels. The latest comprehensive analysis was conducted in 1974. The 1979 analysis is the same as the 1974 analysis except that certain overall undocumented benefit categories were eliminated and 1979 prices were used. To use the 1974 analysis would have the effect of further increasing the benefit-cost ratio.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost	$1,470,000,000

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	86	Sep 2010

			Accum. Pct. of Est Fed. Cost
Estimated Non-Federal Cost		8,000,000	
Cash Contribution	0		
Other	8,000,000		
Total Estimated Project Cost		$1,478,000,000	
Allocations to 30 September 1989		612,133,000	
Conference Allowance for FY 1990		32,800,000	
Allocation for FY 1990		25,350,000 1/	
Allocations through FY 1990		637,483,000	43
Allocation Requested for FY 1991		32,000,000	46
Scheduled Balance to Complete after FY 1991		800,517,000	
Unscheduled Balance to Complete after FY 1991		0	

1/ Reflects reduction of $2,260,000 assigned as savings and slippage, $1,619,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $3,571,000 reprogrammed from the project.

PHYSICAL DATA

Levees:
- Average Height - 20 feet
- Length - 449 miles

Relocations:
- Roads - 15 miles
- Railroads - 20 miles

Drainage Structures:

Pointe Coupee	2 gates, 10.5 by 15 feet
Melville	2 - 72-inch corrugated metal pipe with vertical lift gate
Darbonne	10-foot by 10-foot barrel with vertical lift gate
Bayou des Glaises	72-inch corrugated metal pipe with flap gate

Pumping Stations:
- Number - 11
- Capacity - Minimum - 50 cubic feet per second
  - Maximum - 1,500 cubic feet per second
  - Average - 400 cubic feet per second

Bank Stabilization:
- Length - 58 miles

Floodgates:
- Charenton - Sector-gated, 45 feet wide
- East Calumet - Sector-gated, 45 feet wide
- West Calumet - Sector-gated, 45 feet wide

Channels:
- Length: 147.1 miles

Bayou Courtableau	2 weirs, 503 feet long
Brushy Bayou	5-foot by 6-foot barrel with vertical lift gate
Bayou Courtableau	5-barrel, each 10 feet by 15 feet with vertical lift gate
Wax Lake East	25 pipes, 5 feet in diameter with slide gates
Wax Lake West	15 pipes, 5 feet in diameter with slide gates

Lands and Damages:
298,212 acres

Locks:
- Bayou Boeuf, 75 feet by 1,156 feet, earth chamber
- Bayou Sorrel, 56 feet by 797 feet, earth chamber
- Berwick, 45 feet by 300 feet, concrete chamber

Atchafalaya River Navigation:
- New Channel 10.1 miles

Freshwater Control Structure:
- Sherburne - dual 10-foot by 10-foot reinforced concrete box culverts with gates
- Henderson - dual 10-foot by 10-foot reinforced concrete box culverts with gates

JUSTIFICATION: The Mississippi River below Morganza Floodway is capable of carrying 1,500,000 cubic feet per second without threatening the integrity of the levees along its banks which protect densely populated areas, highly developed agricultural lands, industries, and the city of New Orleans, as well as a number of lesser populated communities. Studies indicate that the project flood against which the flood control protection works are designed will be of such magnitude that 3,000,000 cubic feet per second will pass the latitude of Old River. Since the Mississippi River below the Morganza Floodway can carry only one-half this amount, the other one-half must be diverted from the main channel. The diversion is made through the Old River Control Structure, the Old River Auxillary Structure, and the Atchafalaya River, and through the Morganza and West Atchafalaya Floodways. In order to prevent diverted waters from spreading over the rich and highly developed agricultural lands outside of the Atchafalaya Basin, these rivers and floodways have been leveed to confine the diverted flow. In order to eliminate unnecessary damage, it is essential that the work proceed as vigorously and as expeditiously as possible. This floodway system is, for all practical purposes, a part of the main river system, in as much as the integrity of the main river system depends upon its utilization. Since this construction began, people have developed farms and industries in the areas adjacent to the floodway with full confidence that they would receive protection. Therefore, overtopping or crevassing of the levees would cause far more damage than anticipated at the start of project construction. The main protection levees in the lower reaches are deficient because of consolidation of the soft underlying soils, especially those below the latitude of Krotz Springs. Early construction of these levees to the approved grade is essential, not only for flood protection, but as a means of access for the movement of manpower and equipment to any spot threatened by floods.

The Atchafalaya Basin project, authorized in 1928, is one of the Main Stem components which comprise the plan of improvement for the control of floods on the Mississippi River. The contribution of each element to the overall plan is inseparably related to that made by the others. Therefore, their benefits are inseparable and a composite benefit to cost ratio for the Main Stem components is necessary. The components are: Mississippi River Levees, Channel Improvement, South Bank Arkansas and South Bank Red River Levees, the Atchafalaya Basin, the Atchafalaya Basin Floodway System, old River, and railroad bridges.

a few miscellaneous items. The benefit to cost ratio was derived by measuring the total benefits credited to these Main Stem components against their total cost. Total average annual benefits for the composite of Main Stem features applicable to this project are as follows:

Annual Benefits	Amount
Flood Control	$ 2,618,860,000
Navigation	790,162,000
Area Redevelopment	11,307,000
Recreation	3,018,000
Total	3,423,347,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate:	
Channel Training, Diversion & Circulation Channels	$ 742,000
West Bayou Sale, Maryland Levee	727,000
Initiate and Complete:	
Pumping Stations Modification:	
Centerville	422,000
Maryland	224,000
Franklin and Franklin Enlargement	467,000
Channel Realinement	3,320,000
Channel Training Closures, Phase 1	429,000
W-123 Earthwork	1,315,000
Continue:	
Lands and Damages	600,000
Miscellaneous Relocations	736,000
Channel Realinement East Freshwater	1,500,000
Channel Training Above Morgan City	1,523,000
E-105 Levee Enlargement	1,689,000

Complete:	
E-50 Floodwall & E-52 Levee	$ 1,261,000
W-46 & W-52 Levee and Berms	1,313,000
W-124 Floodwall	1,000,000
East Bayou Sale, Ellerslie Levee	700,000
E-96 Levee Enlargement	800,000
Gap Closures W-74, W-91 & W-106	200,000
Channel Realinement West Access	1,860,000
Gap Closures E-33 & E-36	200,000
Gap Closures W-106 & W-112	242,000
Surveys and Layouts	450,000
Engineering and Design	6,581,000
Supervision and Administration	3,699,000
Total	$32,000,000

NON-FEDERAL COST: In accordance with the Flood Control Act of 15 May 1928, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Bear the administrative costs for furnishing rights-of-way for levee and levee drainage construction; purchase maintenance equipment; and perform miscellaneous levee work.	$1,110,000	-
Agree to accept lands turned over to them under the provision of Section 4 of the Flood Control Act of 15 May 1928, and as provided in the Flood Control Act of 18 August 1941.	-	-

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Bear costs for and maintain all flood control works after their completion, except controlling and regulating spillway structures, including special levees; maintenance includes normally such matters as cutting grass, removal of weeds, local drainage and minor repairs to the levees.	-	$1,300,000
For the Upper Point Coupee Loop Area, provide an interior drainage system and comply with the applicable provisions of the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970, PL 91-646, approved 2 January 1971, and comply with the provision of Section 221 of the Flood Control Act of 1970, PL 91-611.	6,890,000	-
Total Non-Federal Costs	$8,000,000	$1,300,000

STATUS OF LOCAL COOPERATION: Necessary assurances for maintaining the project have been furnished by the Atchafalaya Basin Levee District; Red River, Atchafalaya and Bayou Boeuf Levee District; St. Mary Parish Police Jury; Pointe Coupee Parish Police Jury; and the towns of Berwick and Morgan City, LA. These agencies are furnishing all requirements of local cooperation necessary for meeting present project schedules.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $1,470,000,000 is an increase of $16,000,000 from the latest estimate ($1,454,000,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$129,157,000
Design Changes	-125,758,000
Post Contract Award and Other Estimating Adjustments	7,803,000
Sundry	42,000
Price Escalation on Real Estate	4,756,000
Total	$16,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on 20 August 1982. The final Environmental Impact Statement for the Upper Pointe Coupe Loop Area was filed with the Council on Environmental Quality on 11 June 1976.

OTHER INFORMATION: Funds to initiate construction were appropriated in 1928.

APPROPRIATION TITLE: Flood Control, Mississippi River & Tributaries, AR, IL, KY, LA, MS, MO, and TN - Construction

PROJECT: Atchafalaya Basin Floodway System, Louisiana (Continuing)

LOCATION: The project is located in south-central Louisiana below the latitude of Old River and west of and generally paralleling the Mississippi River. The Atchafalaya River flows through the middle of the basin.

DESCRIPTION: The floodway is approximately 110 miles long by 15 miles wide. The plan of improvement for scheduled work consists of acquisition of real estate interest, excluding minerals, in the Lower Atchafalaya Floodway for flood control purposes, environmental protection purposes, and public access. The plan of improvement for unscheduled work consists of acquisition of real estate interest, excluding minerals in the Lower Atchafalaya Floodway, for recreation developmental purposes and construction of several campgrounds, boat launching ramps, other recreational facilities and channels, canals, levees and floodwalls for the creation of five fish and wildlife management units. This work is unscheduled pending a decision to initiate acquisition and construction. These project features will be considered for construction in accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986.

AUTHORIZATION: Supplemental Appropriations Act, 1985, and the Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 37.1 to 1 at 2-1/2 percent. The ratio is based on all features which comprise the Main Stem system of the Mississippi River and Tributaries project.

TOTAL BENEFIT-COST RATIO: 7.9 to 1 at 2-1/2 percent.

INITIAL BENEFIT-COST RATIO: The authorized comprehensive review of the Mississippi River and Tributaries project, contained in House Document 308/88/2, as updated to reflect 1965 conditions and price levels, is considered to be the base estimate for the Main Stem system. The benefit-to-cost ratio for the Main Stem components computed for the base estimate was 7.9 to 1.

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in October 1979 at 1979 price levels. The latest comprehensive analysis was conducted in 1974. The 1979 analysis is the same as the 1974 analysis except that certain overall undocumented benefit categories were eliminated and 1979 prices were used. To use the 1974 analysis would have the effect of further increasing the benefit-cost ratio.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost (Corps of Engineers)		$138,000,000
Scheduled Construction	$93,000,000	
Unscheduled Construction	45,000,000	

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	5	Indefinite

Estimated Federal Cost (Dept of Interior)			12,000,000
Scheduled Construction		12,000,000	
Unscheduled Construction		0	
Estimated Total Appropriation Requirement			150,000,000
Scheduled Construction		105,000,000	
Unscheduled Construction		45,000,000	
Estimated Non-Federal Cost			48,000,000
Scheduled Construction		35,000,000	
Cash Contributions	0		
Other Costs	35,000,000		
Unscheduled Construction		13,000,000	
Cash Contributions	12,100,000		
Other Costs	900,000		
Total Estimated Scheduled Construction Cost			140,000,000
Total Estimated Unscheduled Construction Cost			58,000,000
Total Estimated Project Cost			198,000,000

			Accum. Pct. of Est. Fed. Cost
Allocation to 30 September 1989	20,656,000	1/	
Conference Allowance for FY 1990	11,700,000		
Allocation for FY 1990	10,317,000	2/	
Allocations through FY 1990	30,973,000		21
Allocation Requested for FY 1991	11,700,000		28
Scheduled Balance to Complete after FY 1991	62,327,000		
Unscheduled Balance to Complete after FY 1991	45,000,000		

PHYSICAL DATA

Lands and Damages: 595,000 Acres
Relocations: 2 Pipelines
Recreation Facilities:
  3 campgrounds - destination type
  7 campgrounds - primitive type
  15 boat-launching ramps
Channels & Canals & Levees & Floodwalls:
  5 fish and wildlife management units

1/ Includes $12,000,000 for land acquired in July 1986 by Department of Interior for public access to management areas.

2/ Reflects reduction of $806,000 assigned as savings and slippage, $152,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $425,000 reprogrammed from the project.

JUSTIFICATION: The Atchafalaya Basin Floodway System features result from a comprehensive study with a view to developing a plan for the management and preservation of the water and related land resources of the Atchafalaya River Basin, Louisiana, which would include provisions for reductions of siltation, improvement of water quality, and possible improvements of the area for commercial and sport fishing. The features of the Atchafalaya Basin Floodway System are compatible with the current flood control plan, and include real estate acquisition of developmental easements over privately owned land in the floodway south of Krotz Springs, Louisiana, to ensure unhampered use of the floodway during major floods and environmental easements over the same land to protect the basin's environmental resources. Provision of additional public access and several campgrounds, boat launching ramps, and other recreational facilities are also included to allow public enjoyment of the area's unique environmental values. The system management unit feature involves making use of distinct hydrologics within the floodway to restore historical overflow conditions and thereby enhance aquatic ecosystem productivity. The Atchafalaya Basin Floodway System project is one of the Main Stem components which comprise the plan of improvement for the control of floods on the Mississippi River. The contribution of each element to the overall plan is inseparably related to that made by the others. Therefore, their benefits are inseparable and a composite benefit to cost ratio for the Main Stem components is necessary. The components are: Mississippi River Levees, Channel Improvement, South Bank Arkansas and South Bank Red River Levees, the Atchafalaya Basin, Atchafalaya Basin Floodway System, Old River, and a few miscellaneous items. The benefit to cost ratio was derived by measuring the total benefits credited to these Main Stem components against their total cost. Total average annual benefits for the composite of Main Stem features applicable to this project are as follows:

Annual Benefits	Amount
Flood Control	$2,618,860,000
Navigation	790,162,000
Redevelopment	11,307,000
Recreation	3,018,000
Total	$3,423,347,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue	
Lands and Damages	$11,700,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance and Replacement Costs
Pay one-half of the separable cost allocated to recreation and bear all costs of operation, maintenance, and replacements of recreation facilities.	$12,100,000	$500,000
Provide lands, easements, rights-of-way, and dredged material disposal areas for recreation.	900,000	-
Voluntarily contribute state-owned lands.	35,000,000	-
Bear all costs of operation and maintenance of Fish and Wildlife Management Units.	-	68,000
Total Non-Federal Costs	$48,000,000	$568,000

STATUS OF LOCAL COOPERATION: There is no non-Federal cost associated with the presently scheduled work. In the event a decision is made to implement the unscheduled features of the project, local cooperation agreements in accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986 will be obtained prior to the initiation of construction. The State of Louisiana designated the Department of Natural Resources in regard to land acquisition and land management and the Department of Culture, Recreation, and Tourism in regard to the construction of recreation facilities to represent the State as local assuring agencies.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $150,000,000 is an increase of $1,200,000 from the latest estimate ($148,800,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Real Estate	$ +896,000
Post Contract Award and Other Estimating Adjustments	+304,000
Total	$+1,200,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on 20 August 1982.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1985.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Construction

PROJECT: Helena Harbor, Phillips County, Arkansas (Continuing)

LOCATION: The project is located on the west bank of the Mississippi River approximately 5 miles south of Helena, Phillips County, Arkansas.

DESCRIPTION: The project consists of dredging a navigation channel 2.25 miles long, 300 feet wide, and 9 feet deep with 16 acres of landfill to provide access for the 238 acres of landside industrial area: construction of a fleeting area, turning basin, harbor protection levee, widened main line levee, main line levee berm, and a fish and wildlife area. The project is to be constructed in two stages. The first stage is scheduled and consists of work required to meet the needs of anticipated industrial growth to the year 2005. The second stage is unscheduled and consists of construction to provide harbor facilities for the anticipated growth to the year 2021.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 2.2 to 1 at 8 7/8 percent.

TOTAL BENEFIT - COST RATIO: 1.6 to 1 at 8 7/8 percent.

INITIAL BENEFIT-COST RATIO: 2.1 to 1 at 8 7/8 percent (FY 1988).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation approved in April 1989 at 1988 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost			$ 33,800,000
Scheduled Construction		$19,600,000	
Unscheduled Construction		14,200,000	
Estimated Non-Federal Cost			$ 14,900,000
Scheduled Construction		8,736,000	
Cash Contribution	$ 3,600,000		
Other Costs	5,136,000		
Unscheduled Construction		6,164,000	
Cash Contribution	$ 2,325,000		
Other Costs	4,839,000		

STATUS (1 Janaury 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Stage 1	1	AUG 1993
Stage 2	0	Indefinite
Entire Project	0	AUG 1993

		Accum. Pct. of Est. Fed. Cost
Total Estimated Scheduled Construction Cost	$28,336,000	
Total Estimated Unscheduled Construction Cost	20,364,000	
Total Estimated Project Cost	48,700,000	
Allocations to 30 September 1989	4,562,000	
Conference Allowance for FY 1990	5,500,000	
Allocation for FY 1990	729,000 1/	
Allocation through FY 1990	5,291,000	12
Allocation Requested for FY 1991	800,000	18
Scheduled Balance to Complete After FY 1991	13,509,000	
Unscheduled Balance to Complete After FY 1991	14,200,000	

1/ Reflects $379,000 reduction assigned as savings and slippage, $72,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $4,320,000 reprogrammed from the project.

PHYSICAL DATA

	Stage 1	Stage 2
Lands and Damages:	1,025 acres	575 acres
Navigation Channel:		
Length	2.25 miles	1.6 miles
Width	300 feet	300 feet
Depth	9 feet	9 feet
Harbor Protection:		
Levee	2.6 miles	-
Tree Screen	2.9 miles	-
Main Line Levee:	-	1.8 miles
Levee Enlargement	3.0 miles	-
Levee Berm	1.2 miles	0.9 miles
Industrial Fill:	16 acres	-
Fish and Wildlife Area:	310 acres	undetermined

JUSTIFICATION: The existing harbor facilities at Helena were constructed in the 1960's, but are no longer adequate to meet current industrial needs. Additional prime waterfront industrial land in the amount of 238 acres will be provided by construction of Stage 1 and is projected to be fully occupied by the year 2005. Stage 2 provides another 230 acres that will be needed for industrial development. Preliminary analysis indicates that this additional land will be fully occupied by the year 2021. This illustrates a need for Stage 2, but its construction is not scheduled and thus its benefits have not been quantified. The benefits of increasing efficiency in waterborne commerce will not be realized without construction of additional harbor facilities. Total average annual benefits for Stage 1 are as follows:

Total Annual Benefits	Amount
Navigation	$ 4,569,000
Area Redevelopment	65,000
Land Enhancement	3,000
Land Freed for Production Use	17,000
Total	$ 4,654,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate:		
Navigation Channel, Item 2-1, Miles 0.8 to 1.9	$	328,000
Complete:		
Navigation Channel, Item 1-2, Miles 0.0 to 0.6	$	102,000
Engineering and Design		158,000
Supervision and Administration		212,000
Total	$	800,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, as amended, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Stage 1		
Provide lands, easements, rights-of-way, relocations and dredged material disposal areas.	$1,537,000	
Pay 10 percent of the costs allocated to the general navigation feature of the inland harbor construction for a depth not in excess of 20 feet.	2,489,000	
Reimburse an additional 10 percent of the costs allocated to the general navigation feature of the inland harbor construction for a depth not in excess of 20 feet within a period of 30 years following completion of construction (which is partially offset by a credit for the value of lands, easements, rights-of-way, relocations (except utility relocations), and dredged material disposal areas.	1,111,000	
Pay all costs associated with berthing area, fleeting area, industrial fill, land enhancement associated with the industrial fill, widening of the main line levee, alteration of the main line levee berm, and bear all costs of operation, maintenance, and replacement of the berthing area, fleeting area, industrial fill, harbor protection levee, and main line levee berm.	3,599,000	$ 40,000
Total Non-Federal Costs, Stage 1	$8,736,000	$ 40,000

Requirements of Local Cooperation (continued)	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Stage 2		
Provide lands, easements, rights-of-way, relocations and dredged material disposal areas.	$ 663,000	
Pay 10 percent of the costs allocated to the general navigation feature of the inland harbor construction for a depth not in excess of 20 feet.	1,489,000	
Reimburse an additional 10 percent of the costs allocated to the general navigation feature of the inland harbor construction for a depth not in excess of 20 feet within a period of 30 years following completion of construction (which is partially offset by a credit for the value of lands, easements, rights-of-way, relocations, except utility relocations), and dredged material disposal areas.	836,000	
Pay all costs associated with berthing area, industrial area, and bear all maintenance, and replacement of the berthing area, main line levee and main line levee berm.	3,149,000	$ 40,000
Total Non-Federal Costs, Stage 2	$6,164,000	$ 40,000

STATUS OF LOCAL COOPERATION: The non-Federal sponsor is the Helena-West Helena, Phillips County Port Authority, an agency of Arkansas. The Local Cooperation Agreement was executed on 12 July 1989.

Right of entry for the first construction item was received on 31 August 1989. The Port Authority is continuing with acquisition of the remaining right of way requirements consistent with the construction schedule. The current non-Federal cost estimate of $8,736,000 is unchanged from that noted in the Local Cooperation Agreement, which included a cash contribution of $2,489,000 payable during the period of construction and an additional cash contribution of $1,111,000 payable upon completion or within a 30 year period following construction. Our analysis of the non-Federal sponsors's financal capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $33,800,000 is a decrease of $10,100,000 from the latest estimate ($43,900,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Feature:	$ - 1,300,000
Design Changes	- 8,800,000
Total	$ -10,100,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on December 14, 1979. An environmental assessment was conducted during design studies concerning the current plan of improvement. From these studies it was determined that a supplement to the final Environmental Impact Statement is not required.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design and construction were appropriated in FY 1988.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN - Construction

PROJECT: Memphis Harbor (Ensley Berm), TN (Deficiency Correction)

LOCATION: The Memphis Harbor (Ensley Berm) project lies along Tennessee Chute (McKellar Lake), on the island lying between the main channel of the Mississippi River and Tennessee Chute and along the left bank of Tennessee Chute and the Mississippi River below the mouth of the chute. The project is located in the southwest part of the City of Memphis, Tennessee.

DESCRIPTION: The major features of the project include a closure of the head of Tennessee Chute, a 960-acre industrial site embankment above the elevation of the project design flood, dredged harbor channels, a left bank chute levee and pumping station, extension of an existing sanitary sewer, and stabilization works as necessary to protect the project improvements. The Ensley Berm is an appendage to the left bank chute levee. The 11-mile long Ensley Levee and a 900 cubic feet per second pumping station, were constructed in association with harbor improvements and were designed to provide protection for the 5,000 acre Frank C. Pidgeon Industrial Area, of which 4,000 acres are prime industrial development land. The proposed continuous landside seepage berm would extend along 7 miles of the Ensley Levee starting at the northwest corner of the industrial area and ending at the pumping station. All work is scheduled.

AUTHORIZATION: The Flood Control Acts of 1928 and 1946.

REMAINING BENEFIT-REMAINING COST RATIO: 2.5 to 1 at 2-1/2 percent.

TOTAL BENEFIT-REMAINING COST RATIO: 6.0 to 1 at 2-1/2 percent.

INITIAL BENEFIT-COST RATIO: 6.2 to 1 at 2-1/2 percent (FY 1948).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest reanalysis performed in May 1986 based on 1985 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST
Original Project			
Actual Federal Cost		$18,737,000	
Actual Non-Federal Cost		410,000	
Cash Contributions	$ 0		
Other Costs	410,000		
Total Original Project Costs		19,147,000	
Remedial Work			
Estimated Federal Cost		4,363,000	
Estimated Non-Federal Cost		100,000	
Cash Contributions	0		
Other Costs	100,000		
Total Estimated Remedial Cost		4,463,000	
Total Estimated Project Cost		23,610,000	
Allocations to 30 September 1989		18,737,000	
Conference Allowance for FY 1990		0	
Allocations for FY 1990		1,000,000	1/
Allocations through FY 1990		19,737,000	84
Allocation Requested for FY 1991		1,700,000	93
Balance to Complete after FY 1991		1,663,000	

1/ Reflects $1,000,000 reprogrammed to the project.

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Ensley Berm	0	Sep 1992
Entire Project	95	Sep 1992

PHYSICAL DATA

Levees:	11 miles
Pumping Plant:	1
Channels:	11 miles
Berm:	7 miles
Relocations:	1 sewer line 1 power line
Other:	Closure dam 960 acres of Industrial fill 1.5 miles of revetment

JUSTIFICATION: The Frank C. Pidgeon Industrial Park was created by the construction of the Ensley Levee and Pumping Station. The 1973 and 1975 floods on the Mississippi River made it apparent that the Ensley Levee could not provide the designed flood protection. During both floods, underseepage caused sand boils to occur 500 to 1,000 feet landside of the levee and a "quick" condition also occurred landside of the levee making it necessary to back flood the protected area in order to prevent the levee from failing. In order for the industrial park to be developed, the Ensley Levee must safely provide the designed flood protection. To provide flood protection, the Ensley Berm must be constructed to protect the levee from damaging seepage pressures during floods on the Mississippi River. The total average annual benefits are $2,700,000, all for navigation.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue:	
Ensley Berm, TN	$1,600,000
Engineering and Design	10,000
Supervision and Administration	90,000
Total	$1,700,000

NON-FEDERAL COSTS: In accordance with the Flood Control Act of 1928 as modified by the Flood Control Act of 24 July 1946, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way and spoil-disposal areas necessary for initial construction and subsequent maintenance.	$ 410,000	
Relocations. Install terminal facilities and public utilities required, open to all on equal terms.	100,000	

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Maintain and operate all works, other than channel improvements		$ 57,000
Total Non-Federal Costs	$ 510,000	$ 57,000

STATUS OF LOCAL COOPERATION: The local sponsor, the city of Memphis, Tennessee, and the Memphis and Shelby County Port Commission, provided assurances under the original project to provide without cost to the United States all land, easements, and rights-of-way, and spoil disposal areas necessary for the construction and subsequent maintenance as required, and will maintain and operate after completion all works constructed by the United States as part of the authorized project other than channel improvements. It is considered that the assurances previously furnished by the local sponsor are adequate for construction of Ensley Berm.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $23,100,000 is an increase of $3,800,000 from the latest estimate ($19,300,000) submitted to Congress (FY 1967). This change includes the following items:

Item	Incremental Change
Price Escalation on Construction Features	$ 310,000
Design Changes (Deficiency Correction)	3,490,000
Total	$3,800,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The environmental impact statement for this work is covered by the environmental impact statement for the Mississippi River, Memphis, Tennessee Additional Harbor Facilities, filed with the Environmental Protection Agency on 5 February 1980.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Construction

PROJECT: St. Francis Basin, Arkansas and Missouri (Continuing)

LOCATION: The project is located in the St. Francis Basin in southeastern Missouri and northeastern Arkansas, and extends from the hills southwest of Cape Girardeau, Missouri, near Wappapello, Missouri, to the confluence of the St. Francis and Mississippi Rivers about 10 miles above Helena, Arkansas.

DESCRIPTION: The project provides for protection against headwater floods by means of a detention reservoir at Wappapello, MO, improvement of the flood-carrying capacities of the St. Francis and Little Rivers and their principal tributaries by means of levees, channel improvements, new channels, auxiliary channels, and floodways, including the main ditches in the Little River Basin. Protection against backwater flooding of the Mississippi River is provided by realignment of the St. Francis River channel supplemented with auxiliary channels, levee construction, and a pumping plant and floodgate. All work is scheduled.

AUTHORIZATION: Flood Control Acts of 1928, 1936, 1938, 1941, 1944, 1946, 1950, 1958, 1965, and 1968 and Water Resources Development Act of 1974.

REMAINING BENEFIT - REMAINING COST RATIO: 3.3 to 1 at 2-1/2 percent.

TOTAL BENEFIT - COST RATIO: 3.4 to 1 at 2-1/2 percent.

INITIAL BENEFIT - COST RATIO: This project feature was authorized in Fiscal Year 1928 and initial construction funds were provided in Fiscal Year 1938. The authorized comprehensive review of the Mississippi River and Tributaries project, contained in House Document 308/88/2, as updated to reflect 1965 conditions and price levels, is considered to be the base estimate for the project. The benefit-cost ratio for the St. Francis Basin components computed for the base estimate was 2.4 to 1.

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation approved in March 1975 at 1974 price levels.

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$374,000,000	
Estimated Non-Federal Cost		1,876,000	
Cash Contribution	$ 263,000		—
Other Costs	1,613,000		
Total Estimated Project Cost		$375,876,000	
Allocations to 30 September 1989		$276,939,900	
Conference Allowance for FY 1990		10,500,000	
Allocation for FY 1990		9,988,000 1/	
Allocations through FY 1990		$286,927,000	77
Allocation Requested for FY 1991		$10,200,000	79
Scheduled Balance to Complete After FY 1991		76,873,000	
Unscheduled Balance to Complete After FY 1991		0	

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Big Slough and Mayo Ditch	100	
Wappapello Lake	100	
Little River Drainage	90	Feb 1998
St. Francis River and Tributaries	81	Jan 1999
Entire Project	82	Jan 1999

1/ Reflects $723,000 reduction assigned as savings and slippage, and $137,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $348,000 reprogrammed to the project.

PHYSICAL DATA

Levees:
Average Height - 11.7 feet
Length - 438.0 miles

Channels:
St. Francis River and Tributaries - 638 miles
Little River Drainage - 299 miles
Big Slough and Mayo Ditches - 28 miles

Pumping Plants:
1 - 25 cubic feet per second
1 - 12,000 cubic feet per second
1 - 700 cubic feet per second

Relocations:
Roads - 21.3 miles and 296 bridges
Railroads - 39 bridges

Lands and Damages: 188,927 acres

Dam and Reservoir: 1 - Dam

Flood Control and Diversion Structures: 8

Other: 1 - Syphon

JUSTIFICATION: The project is a single-purpose flood control project and is a unit in the Comprehensive Plan for Flood Control, Mississippi River and Tributaries. Protection against headwater floods of the St. Francis and Little Rivers will be afforded to an area of approximately 1,436,855 acres of agricultural lands including numerous small towns, several major railroads, highways, and utilities, located in Missouri and Arkansas. The construction of adequate outlets for the many drainage improvements undertaken by local interests will provide relief from overflow on approximately 196,700 acres in the Little River Basin, 29,000 acres in the Elk Chute Basin, and 35,000 acres in the Big Slough area. In addition, relief from flooding by backwaters of the Mississippi River is afforded to approximately 532,000 acres in the Lower St. Francis Basin below the latitude of St. Francis Lake by the Madison to Marianna Cutoff and related work including the pumping plant. Flooding has occurred every year with few exceptions, and the flood of record occurred in 1937 causing numerous breaks in the locally constructed substandard levees with resultant damages of over $2,000,000. It is estimated that the recurrence of the 1937 flood, under present conditions of development in the floodplain, would cause damages of over $47,000,000 if the flood occurred during the crop growing season. Continuing construction of this project is needed to prevent recurring flood losses. Project benefits will result from flood damages prevented, increased utilization of land, and fish and wildlife enhancement. The total average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$39,785,000
Recreation	2,152,000
Fish and Wildlife	333,000
Area Redevelopment	785,000
Advance Replacement	2,620,000
Betterments	752,000
Relocation Assistance	24,000
Total	$46,451,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

ST. FRANCIS RIVER AND TRIBUTARIES

Initiate:	
State Bridge, Bypass Steele, Mile 2.49, MO	$ 50,000
State Bridge, Bypass Steele, Mile 3.15, MO	50,000
Main Ditch Channel, MO	1,000,000
Ditch No. 9 Channel, MO	1,100,000
State Bridge, Ditch 1, AR, Item 3, Mile 27.63	100,000

Initiate and Complete:	
County Bridge, Ditch 1, AR, Item 2, Mile 13.12	158,000
Ditch 10 Channel, AR	190,000
Continue:	
Gravel on Roadways	599,000
Miscellaneous Utilities	200,000
Lands and Damages	1,400,000
Complete:	
County Bridges, Main & New Franklin Ditch, Miles 0.54 & 3.03, MO	393,000
State Bridge, Ditch 9, Mile 4.91, AR	185,000
State Bridge, Main & New Franklin Ditch, Mile 3.64, MO	890,000
State Bridge, Ditch 1, AR, Item 2, Miles 14.32 & 15.00	373,000
Ditch 1, Item 1, Channel, AR	348,000
County Bridge, Ditch 9, Mile 6.96, AR	86,000
County Bridge, Ditch 10, AR, Station 89+05	66,000
Lower Buffalo Creek Channel, AR	200,000
Engineering and Design	1,300,000
Supervision and Administration	802,000
Subtotal	$ 9,490,000
LITTLE RIVER DRAINAGE	
Initiate and Complete:	
Ditch 19 Extension & Lateral 1, MO	$ 300,000
Continue:	
Lands and Damages	150,000
Engineering and Design	160,000
Supervision and Administration	100,000
Subtotal	$ 710,000
Total	$10,200,000

NON-FEDERAL COST: Prior to the Flood Control Act of 1946, local interests provided lands, easements, and rights-of-way and provided for relocation of interfering facilities. After 1946, local cooperation was limited to minor maintenance of levees except for providing right-of-way for specific features, i.e., recreation facilities at the W. G. Huxtable Pumping Plant, Inter River Culvert and St. Francis Lake Control Structure. A tabulation of these and other non-federal costs is as follows:

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$1,492,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	121,000	
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, and replacement of recreation facilities.	85,000	
Pay all costs of minor maintenance of levees.		$429,000
Pay a portion equivalent to 6.4% of the first costs associated with the improvements in the Big Lake area for fish and wildlife enhancement.	178,000	
Total Non-Federal Costs	$1,876,000	$429,000

STATUS OF LOCAL COOPERATION: Necessary assurances have been furnished by 24 levee and drainage districts to perform minor maintenance as required by law. These agencies are furnishing all requirements of local cooperation necessary for meeting the present project schedule.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $374,000,000 is a decrease of $21,000,000 from the latest estimate ($395,000,000) presented to Congress (FY 1990). This change includes the following item:

Item	Amount
Price Escalation on Construction Features	-$16,878,000
Design Changes	-1,915,000
Post Contract Award and Other Estimating Adjustments	-3,861,000
Price Escalation on Real Estate	+1,654,000
Total	-$21,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 11 December 1973.

OTHER INFORMATION: Initial construction funds were appropriated in FY 1938.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Construction

PROJECT: Mississippi Delta Region, Louisiana (Salinity Control Structures) (Continuing)

LOCATION: The project is located in the lower Mississippi River delta region in Plaquemines and St. Charles Parishes, Louisiana. The Caernarvon structure is located in Plaquemines Parish on the east bank of the Mississippi River in the vicinity of Caernarvon, Louisiana. The Davis Pond structure is located in St. Charles Parish on the west bank just downstream of Luling, Louisiana. The two remaining structures are located in Plaquemines Parish at Homeplace, on the west bank, and Bohemia, on the east bank.

DESCRIPTION: The plan of improvement consists of four salinity control structures (Caernarvon, Davis Pond, Homeplace, and Bohemia) with appurtenant levees and channels, to divert freshwater from the Mississippi River into coastal bays and marshes for fish and wildlife enhancement. The Caernarvon and Davis Pond salinity control structures are scheduled, including post construction environmental monitoring which will continue for four years after completion of construction of each structure. The Homeplace and Bohemia salinity control structures are unscheduled pending a decision to initiate construction.

AUTHORIZATION: Flood Control Act of 1965, Water Resources Development Act of 1974, and Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 4.6 to 1 at 3-1/4 percent for Bohemia and Caernarvon, and 8-7/8 percent for Davis Pond and Homeplace.

TOTAL BENEFIT - COST RATIO: 3.7 to 1 at 3-1/4 percent for Bohemia and Caernarvon, and 8-7/8 percent for Davis Pond and Homeplace.

INITIAL BENEFIT - COST RATIO: 3.4 to 1 at 3-1/4 percent for Caernarvon and Bohemia (FY 1969), 3.0 to 1 at 8-1/8 percent for Davis Pond (FY 1983), and 1.5 to 1 at 8-5/8 percent for Homeplace (FY 1985).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluations: Caernarvon - approved 18 November 1985, at 1 October 1985 price levels; Davis Pond - approved 16 July 1987, at 1 October 1982 price levels; and Bohemia and Homeplace - approved 6 April 1962, at 1 July 1959 price levels.

SUMMARIZED FINANCIAL DATA

				Accum. Pct. of Est. Fed. Costs
Estimated Federal Cost			$61,500,000	
Scheduled Construction		$50,058,000 1/		
Unscheduled Construction		11,442,000		
Estimated Non-Federal Cost			20,500,000	
Scheduled Construction		16,700,000		
Cash Contribution	$15,622,000			
Other Costs	1,078,000			
Estimated Non-Federal Cost				
Unscheduled Construction		3,800,000		
Cash Contribution	3,800,000			
Other Costs	0			
Total Estimated Scheduled Construction Cost			$66,758,000	
Total Estimated Unscheduled Construction Cost			15,242,000	
Total Estimated Project Cost			82,000,000	
Allocations to 30 September 1989			11,364,000	
Conference Allowance for FY 1990			4,650,000	
Allocation for FY 1990			4,409,000 2/	
Allocations through FY 1990			15,773,000	26
Allocation Requested for FY 1991			4,260,000	33
Scheduled Balance to Complete after FY 1991			30,025,000	
Unscheduled Balance to Complete after FY 1991			11,442,000	

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Caernarvon Structure	64	Dec 1990
Davis Pond Structure	0	Apr 1995
Homeplace Structure	0	Indefinite
Bohemia Structure	0	Indefinite
Entire Project	16	Apr 1995

1/ Includes $58,000 expended on Bohemia prior to 1970.

2/ Reflects reduction of $320,000 assigned as savings and slippage, $61,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $140,000 reprogrammed to the project.

[illegible] JAN 1990

PHYSICAL DATA

	Bohemia	Caernarvon	Davis Pond	Homeplace
Lands and Damages	2,610 acres	2,092 acres	7,811 acres	690 acres
Relocations				
Roads/Bridges	None	1,600 linear feet	2,050 linear feet	1,280 linear feet
Railroads	None	2,500 linear feet	2,000 linear feet	None
Utilities	None	4,600 linear feet	5,580 linear feet	3,680 linear feet
Fish & Wildlife Facilities				
Structures	2 tainter gates 10 feet by 30 feet 4,400 cubic feet per second	5 box culverts 15 feet by 15 feet 8,000 cubic feet per second	6 box culverts 15 feet by 15 feet 10,650 cubic feet per second 5 weirs (5x250 feet) 2 pumping stations	2 tainter gates 13 feet by 30 feet 4,300 cubic feet per second
Channels	5 miles	1.7 miles	2.1 miles	2 miles
Levees	10 miles	3.7 miles	15.4 miles	.4 miles

JUSTIFICATION: The project will divert freshwater from the Mississippi River to coastal bays and marshes for fish and wildlife enhancement. Benefits will include restoration of former ecological conditions by controlling salinity and supplementing nutrients. The bays are important to oyster production and as breeding areas for shrimp and food fishes, while the marsh areas produce natural food for fur-bearing animals and migratory waterfowl. A total of 981,500 acres of marshes and bays will be benefited. The diversions will take place under regulated conditions to insure that the water being diverted into the marshes and bays is not polluted and to insure that enough is discharged to providesufficient dilution of the project area waters. The total average annual benefits are as follows:

Annual Benefits	Amount
Fish and Wildlife	
Caernarvon	$ 7,168,000
Davis Pond	9,181,000
Homeplace	243,000
Bohemia	101,000
Recreation	
Caernarvon	371,000
Davis Pond	237,000
Total	$17,301,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Caernarvon Control Structure	
Complete:	
Construction of Structure	$2,862,000
Surveys and Layout	14,000
Engineering and Design	157,000
Supervision and Administration	382,000
Subtotal	$3,415,000
Davis Pond	
Initiate:	
Land Acquisition	$ 485,000
Engineering and Design	300,000
Supervision and Administration	60,000
Subtotal	$ 845,000
Total	$4,260,000

NON-FEDERAL COST: Based on the cost sharing concept adopted for the Caernarvon Structure, the non-Federal sponsor will voluntarily contribute 25 percent of the first cost of the project as well as the required 25 percent of the cost of operating, maintaining, and rehabilitating the project after completion.

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Requirements of Local Cooperation		
Contribute 25 percent of the first cost allocated to fish and wildlife enhancement and pay 25 percent of the costs of operation, maintenance and replacement of fish and wildlife facilities.		
Davis Pond	$10,200,000	$ 79,000
Bohemia	1,400,000	5,000
Homeplace	2,400,000	9,000
Caernarvon	6,500,000	61,000
TOTAL Non-Federal Costs	$20,500,000	$154,000

The non-Federal sponsor for the Caernarvon and Davis Pond Structures has also agreed to make all required payments of first costs concurrently with project construction.

STATUS OF LOCAL COOPERATION: The Local Cooperation Agreement for the Caernarvon Structure was signed by the State of Louisiana on 2 June 1987 and by the Assistant Secretary of the Army for Civil Works on 10 June 1987. The current non-Federal cost estimate of $6,500,000, which includes a cash contribution of $5,422,000, is an increase of $375,000 from the non-Federal cost estimate of $6,125,000 noted in the Local Cooperation Agreement, which included a cash contribution of $6,125,000. In a letter dated 26 February 1987, the non-Federal sponsor indicated that it is financially capable and willing to contribute the increased non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment. The State of Louisiana has provided cash contributions of $3,550,750 through FY 1989 for the Caernarvon Structure. The State is also performing biological monitoring, with an estimated value of $1,078,000.

1685

The Governor of Louisiana furnished a letter of intent for the Davis Pond Structure dated 28 September 1989, stating that "... The State agree[s] to provide 25 percent of the cost of construction, operation, and maintenance of the Davis Pond Structure despite Congressional authorization of that project at 100 percent Federal cost....contingent upon a Federal commitment that the project schedule will be expedited to begin the construction phase (real estate acquisition) for the Davis Pond Project in Federal fiscal year 1991, or earlier." The schedule for the completion of the Local Cooperation Agreement for the Davis Pond Structure is June 1990.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $61,500,000 is a decrease of $3,000,000 from the latest estimate ($64,500,000) submitted to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ - 2,945,000
Post Contract Award and Other Estimating Adjustments	- 55,000
Total	$ - 3,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement for the Louisiana Coastal Area Study was filed with the Environmental Protection Agency on 5 April 1985. This statement is adequate for the Caernarvon and Davis Pond structures.

OTHER INFORMATION: Local interests, during the period 1954-1970, spent an estimated $420,000 for construction and maintenance of freshwater diversion structures and channel improvements on the east bank of the Mississippi River in the vicinity of Bohemia and Bayou Lamoque.

Funds to initiate preconstruction engineering and design were appropriated in FY 1969 and funds to initiate construction were appropriated in FY 1987.

1686

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Construction

PROJECT: Tensas Basin, Arkansas and Louisiana (Continuing)

LOCATION: The Tensas Basin is located in the alluvial valley of Arkansas and Louisiana between the Mississippi River on the east and an escarpment on the west and extends southward from the Arkansas River to the Red River in the vicinity of Marksville, LA.

DESCRIPTION: The Basin is comprised of two separable units--the upper portion known as the Boeuf-Tensas area and the lower portion known as the Red River backwater area. Major features in the upper Basin consist of 120.4 miles of channel and tributary improvements along the Tensas River and a 6,500 cubic foot per second pumping plant at Lake Chicot. The lower basin features include 93.1 miles of levee and a 4,000 cubic foot per second pumping plant in the Tensas-Cocodrie subarea; 83.2 miles of ring levee for the Larto Lake to Jonesville subarea; construction of a 56.0-mile levee and two pumping plants (300 and 750 cubic feet per second) at Sicily Island subarea; and a 31.3-mile levee with a 500 cubic foot per second pumping plant for the Below Red River subarea. All work within the project is scheduled except two recreation facilities at Lake Chicot, Tensas River (Boeuf and Tensas Rivers, Etc.) and Below Red River Area (Red River Backwater). The local development authority which provided assurances that it would operate and maintain Corps constructed recreation facilities in the Tensas Basin at Lake Chicot, AR, has notified the Vicksburg District that it is unable to comply with the assurances previously furnished regarding operation and maintenance of the two remaining recreation facilities. Because of the inability of the local development authority to execute its assurances, construction of two recreation facilities at Lake Chicot has been delayed indefinitely. The General Design Memorandum for the Tensas River was submitted in December 1988. Final review and comment resolution are nearing completion. Upon approval of the General Design Memorandum, no further work will be initiated on the project until assurances from local sponsor are provided. The Phase II report for the Below Red River Area is unscheduled pending a decision to continue further work based on a 0.5 to 1 benefit-cost ratio at the current rate.

AUTHORIZATION: Flood Control Acts of 1941, 1944, 1946, 1950, 1958, 1962, 1965, 1968, and Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 4.1 to 1 at 2-1/2 percent.

TOTAL BENEFIT-COST RATIO: 3.9 to 1 at 2-1/2 percent.

INITIAL BENEFIT - COST RATIO: 3.0 to 1 at 2-1/2 percent (FY 1967).

BASIS OF BENEFIT-COST RATIO: Benefits and costs for the Tensas River separable element are based on an evaluation approved March 1984 at 1986 price levels. The benefits and costs for the Below Red River separable element are based on an evaluation approved 23 March 1981 at 1983 price levels, and the remaining elements in the Tensas Basin are based on the latest available evaluation approved in March 1975 at 1974 price levels.

SUMMARIZED FINANCIAL DATA				
Estimated Total Appropriation Requirement				$489,000,000
Scheduled Construction			$414,644,000	
Unscheduled Construction			74,356,000	
Future Non-Federal Reimbursement				2,287,000
Scheduled Construction			1,824,000	
Unscheduled Construction			463,000	
Estimated Federal Cost (Ultimate)				486,713,000
Scheduled Construction			412,820,000	
Unscheduled Construction			73,893,000	
Estimated Non-Federal Cost				35,950,000
Scheduled Construction			2,287,000	
Cash Contribution		0		
Other Costs		463,000		
Reimbursements		1,824,000		
Rec Fac	1,824,000			
Unscheduled Construction			33,663,000	
Cash Contribution		9,431,000		
Other Costs		23,769,000		
Reimbursements		463,000		
Rec Fac	463,000			
Total Estimated Scheduled Construction Cost				415,107,000
Total Estimated Unscheduled Construction Cost				107,556,000
Total Estimated Project Cost				522,663,000

STATUS (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Boeuf and Tensas Rivers, Etc.	89	Apr 2013
All Work Except Lake Chicot Pumping Plant	82	Apr 2013
Lake Chicot Pumping Plant	96	Sep 1990
Tensas River Separable Element	0	Indefinite
Red River Backwater Area	65	Sep 2010
All Work Except Tensas-Cocodrie Pumping Plant	65	Sep 2010
Tensas-Cocodrie Pumping Plant	99	Sep 1990
Below Red River Separable Element	0	Indefinite
Entire Project	89	Apr 2013

		ACCUM. PCT OF EST. FED. COST
Allocations to 30 September 1989	$251,522,000	
Conference Allowance for FY 1990	6,700,000	
Allocation for FY 1990	5,907,000 1/	
Allocations through FY 1990	257,429,000	53
Allocation Requested for FY 1991	2,000,000	53
Scheduled Balance to Complete After FY 1991	155,215,000	
Unscheduled Balance to Complete After FY 1991	74,356,000	

1/ Reflects reduction of $462,000 assigned as savings and slippage, $87,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $244,000 reprogrammed from the project.

PHYSICAL DATA

Boeuf and Tensas Rivers, Etc.
All Work Except Lake Chicot Pumping Plant

Lands and Damages:
74,279 acres

Relocations:
Roads: 26.6 miles and 88 bridges
Railroads: 9 bridges

Channels and Canals:
1,009.3 miles

Lake Chicot Pumping Plant

Lands and Damages:
1,201 acres

Relocations:
Roads: 1 mile

Channels and Canals:
2 Weirs

Dams:
1 - 200 feet length
1 - 300 feet length

Recreation Facilities:
6 sites

Pumping Plants:
1 - 6,500 cubic feet per second

Roads:
1 - Access Road for Pumping Plant
1 - Access Road for Ditch Bayou Dam
1 - Access Road for Connerly Bayou Dam

Red River Backwater Area
All Work Except Tensas-Cocodrie Pumping Plant

Lands and Damages:
29,146 acres (includes 12,800 acres for mitigation)

Relocations:
Roads: 28.4 miles and 5 bridges

Levees and Floodwalls:
Levees:
  Average Height: 10-25 feet
  Length: 263.6 miles
Drainage Structures: 27 (24" pipes to 10' x 15' box culverts)

Channels and Canals: 46.0 miles
All Interior Drainage except 1-1/2 miles Smithland Cutoff

Recreation Facilities:
9 miles access road

Pumping Plants:
1-300 cubic feet per second
1-750 cubic feet per second
1-500 cubic feet per second

Fish and Wildlife:
1.1 miles diversion channel,
Two 60-inch pipe gravity structures,
1 weir

Tensas-Cocodrie Pumping Plant

Lands and Damages:
790 acres

Relocations:
Roads: 1.4 miles and 3 bridges

Channels and Canals:
6.8 miles, 1 concrete weir, 1 earth weir, and 1 gravity structure

Pumping Plant:
1-4,000 cubic feet per second

Fish and Wildlife Facilities:
Diversion channel
2 water control structures
3 boat-launching ramps

JUSTIFICATION: The Tensas Basin project is comprised of two separable units: the Boeuf and Tensas Rivers, which includes the Lake Chicot Pumping Plant, and the Red River Backwater Area, which includes the Tensas-Cocodrie Pumping Plant.

The land in the Boeuf and Tensas River Basin possesses a high potential for agricultural production but this potential is restricted by the frequency and duration of overflow and by poor drainage which, for long periods, causes the ground to remain in a condition unsuitable for cultivation. The project will eliminate most of these hindrances and allow full economic development by providing adequate channels for the streams and major outlets for an effective local drainage system. A total of 922,000 acres (including Lake Chicot) will be substantially benefited by the project. Lands in the Red River Backwater Area are extremely fertile but their development to full potential is adversely affected by backwaters of the Mississippi River. These lands must remain subject to use for storage of floodwaters during a Mississippi River project flood. However, protection of the area against lesser floods, particularly headwater floods of the Ouachita, Black, and Red Rivers, will permit a high degree of economic development. A total of 575,700 acres will be substantially benefited by the project. The total average annual benefits for the Tensas Basin are as follows:

Annual Benefits	Amount
Flood Control	$46,027,000
Recreation	567,000
Fish and Wildlife	410,000
Area Redevelopment	494,000
Total	$47,498,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Red River Backwater Area	
All Work Except Tensas-Cocodrie Pumping Plant	
Initiate:	
Sicily Island Item 4A	$ 50,000
Continue:	
Lands and Damages	425,000
Utilities Relocations	114,000
Tensas-Cocodrie Levee Enlargement Item 2	257,000
Engineering and Design for Red River Backwater	798,000
Supervision and Administration	356,000
TOTAL	$2,000,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the initial authorization and subsequent authorized modifications of the Tensas Basin project including the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
All Work Except Tensas River and Below Red River		
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$ 463,000	
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, and replacement of recreation facilities.	2,287,000	$1,367,000
Subtotal Non-Federal Costs	$2,750,000	$1,367,000

Local interests estimate that they have expended at least $5,900,000 in the Tensas Basin on the construction of drainage improvements prior to initiation of the Federal project. They estimate they will spend an additional $46,000,000 in construction on connecting ditches, main laterals, and on-farm drainage improvements. This work is being accomplished as the major outlets are opened. Local drainage and levee districts have reported that they expended approximately $5,388,032 on construction and maintenance of drainage improvements between 1950 and 1985.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Tensas River		
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$ 9,574,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	12,237,000	
Pay 5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, and replacement of flood control facilities.	3,889,000	$400,000
Subtotal Non-Federal Costs	$25,700,000	$400,000

Requirements of Local Cooperation	Payments During Construction and Reimbursement	Annual Operations, Maintenance, and Replacement Costs
Below Red River		
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$ 1,958,000	
Pay 5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, and replacement of flood control facilities.	5,542,000	$109,000
Subtotal Non-Federal Costs	$ 7,500,000	$109,000
Total Non-Federal Costs	$35,950,000	$1,876,000

STATUS OF LOCAL COOPERATION:

Boeuf and Tensas Rivers, Etc.

Formal assurances have been furnished by eight levee and drainage districts to operate and maintain all units of the project except the Kirsch Lake Canal. Assurances for Lake Chicot Pumping Plant required by PL 91-611 and PL 91-646 were accepted 16 April 1976 and a cost sharing agreement with the Chicot County Rural Development Authority was executed 28 May 1976. All lands for Lake Chicot recreation development were furnished by 30 March 1976.

The local development authority which provided assurances that it would operate and maintain Corps constructed recreation facilities in the Tensas Basin at Lake Chicot, AR, has notified the Vicksburg District that it is unable to comply with the assurances previously furnished regarding operation and maintenance of two remaining recreation facilities.

Red River Backwater Area

Formal assurances were received 12 February 1947 and accepted 24 April 1947 for all project features except the Sicily Island Area. Assurances of local cooperation were received on 10 February 1981 and accepted 1 April 1981 for the Sicily Island Area project. The adoption of a constitutional amendment in the general election of 1 February 1972 gave the State of Louisiana and its agencies authority to comply with the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970 (PL 91-646). Supplemental assurances covering the requirements of PL 91-646 for the Larto Lake to Jonesville Area were received 9 May 1972 and accepted 25 May 1972. Supplemental assurances covering the requirements of PL 91-646 for the Tensas-Cocodrie Levee Enlargement were received 1 February 1974 and accepted 7 February 1974. Supplemental assurances covering the requirements of PL 91-646 for the Tensas-Cocodrie Pumping Plant were received 18 August 1975 and accepted 27 August 1975.

Tensas River and Below Red River Areas

Local cooperation agreements for the Tensas River and Below Red River separable elements will be obtained consistent with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986. The local sponsor for the Tensas River and the Below Red River elements is the Fifth Louisiana Levee District. A draft Local Cooperation Agreement was sent to the local sponsor 2 May 1988 for review. The local sponsor has indicated that they are unable to cost share these elements and will seek relief from the provisions of the Water Resources Development Act of 1986. By resolution dated 15 November 1989, the Levee District has requested the East Carroll and Madison Parish Police Juries to cosponsor this project.

COMPARISON OF FEDERAL COST ESTIMATES: The current cost estimate of $489,000,000 is an increase of $30,000,000 from the latest estimate ($459,000,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$39,730,000
Post Contract Award and Other Estimating Adjustments	-9,730,000
Total	$30,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on Tensas River, LA, on 18 May 1984; Lake Chicot Pumping Plant on 29 August 1975; and the Red River Backwater Area, Sicily Island Area, on 21 May 1982; Below Red River Area on 30 October 1981; Tensas-Cocodrie Pumping Plant on 24 September 1976; and Tensas-Cocodrie Levee Item on 24 September 1976.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1947 on Red River Backwater Area and in FY 1948 on Boeuf and Tensas River, Etc.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Construction

PROJECT: Yazoo Basin, Mississippi (Continuing)

LOCATION: The project is located in Mississippi and extends generally from Memphis, Tennessee, southward to Vicksburg, Mississippi, and from the escarpment at Greenwood, westward to the Mississippi River.

DESCRIPTION: The project provides for protection against headwater floods of streams in the basin; against backwater floods of the Mississippi; and for major drainage in the delta area. The Yazoo Basin can be readily divided into three major flood control components (the Yazoo Headwater, the Yazoo Backwater, and the Big Sunflower River, Etc., Including Steele Bayou), the Streambank Erosion Control Evaluation and Demonstration Program, which has been completed, and the Demonstration Erosion Control Program. All of the work in the project is scheduled except for remaining recreation facilities at Grenada Lake pending development of cost sharing agreements with local interests for construction and non-Federal operation and maintenance consistent with projects for which recreation facilities are being constructed under the provisions of the Federal Water Project Recreation Act of 1965 (Public Law 89-72), as amended; remaining work on Rocky Bayou pending a decision to continue construction in accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986; and remaining work on the Yazoo Backwater Pumping Plant pending development of cost sharing agreements with local interests for construction and non-Federal operation and maintenance in accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986.

AUTHORIZATION: Flood Control Acts of 1936, 1937, 1938, 1941, 1944, 1946, 1950, 1962, 1965, and the Water Resources Development Acts of 1974 and 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 3.5 to 1 at 2-1/2 percent.

TOTAL BENEFIT-COST RATIO: 3.8 to 1 at 2-1/2 percent.

INITIAL BENEFIT-COST RATIO: 2.1 to 1 at 2-1/2 percent (FY 1967).

BASIS OF BENEFIT-COST RATIO: Benefits and costs for the Yazoo Backwater Pumping Plant are from the latest evaluation approved in March 1988 at 1987 price levels. Benefits and costs for the remaining features of the Yazoo Basin project are from the 1974 Mississippi River and Tributaries Update approved in September 1974 at 1974 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT OF EST. FED. COST
Estimated Federal Cost		$1,578,000,000	
Scheduled Construction	$ 1,499,986,000		
Unscheduled Construction	78,014,000		
Estimated Non-Federal Cost		25,781,000	
Scheduled Construction	881,000		
Cash Contribution	797,000		
Other Costs	84,000		
Estimated Non-Federal Cost			
Unscheduled Construction	24,900,000		
Cash Contribution	20,214,000		
Other Costs	4,686,000		
Total Estimated Scheduled Construction Cost		$1,500,867,000	
Total Estimated Unscheduled Construction Cost		102,914,000	
Total Estimated Project Cost		1,603,781,000	
Allocations to 30 September 1989		529,487,000	
Conference Allowance for FY 1990		37,500,000	
Allocation for FY 1990		36,064,000 1/	
Allocations through FY 1990		565,551,000	36
Allocation Requested for FY 1991		29,225,000	38
Scheduled Balance to Complete after FY 1991		905,210,000	
Unscheduled Balance to Complete after FY 1991		78,014,000	

1/ Reflects reduction of $2,584,000 assigned as savings and slippage, $488,000 sequestered in accordance with the reduction of Gramm-Rudman-Hollings Act, and $1,636,000 reprogrammed to the project.

STATUS (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Yazoo City	100	--
Belzoni	100	--
Will M. Whittington Auxiliary Channel	99	Jul 2000
Sardis Lake	100	--
Arkabutla Lake	100	--
Enid Lake	100	--
Grenada Lake	98	Indefinite
Greenwood	100	--
Streambank Erosion Control Evaluation and Demonstration	100	--
Upper Yazoo Projects	21	Jul 2013
Main Stem	73	Aug 2004
Tributaries	62	May 2010
All Work Except Ascalmore-Tippo and Opossum Bayous	60	May 2010
Ascalmore-Tippo and Opossum Bayous	71	Sep 2000
Demonstration Erosion Control	44	Sep 1992
Big Sunflower River, Etc., Including Steele Bayou	50	Sep 2009
Yazoo Backwater	23	Sep 2009
Yazoo Backwater Including Muddy Bayou Control Structure	51	Sep 2009
Rocky Bayou Separable Element	27	Indefinite
Backwater Pumping Plant Separable Element	5	Indefinite
Yazoo Backwater Mitigation Lands Separable Element	0	Sep 1998
Reformulation Study	8	Dec 1993
Entire Project	65	Jul 2013

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PHYSICAL DATA

Yazoo City:
Lands and Damages: 361 acres
Relocations: 1.1 miles roads
Levees: 1.8 miles
Pumping Plant: 1 - 540 cubic feet per second

Belzoni:
Lands and Damages: 3.3 acres
Levees: 0.1 mile levee and 0.6 mile floodwall

Will M. Whittington Auxiliary Channel:
Lands and Damages: 11,996 acres
Relocations:
Roads 3.0 miles and 12 bridges
Railroads 0.4 mile and 1 bridge
Fish and Wildlife Facilities:
1 water control structure
Channels: 30.8 miles
Levees: 61.3 miles

Sardis Lake:
Lands and Damages: 98,584 acres
Relocations:
Roads 3.2 miles and 1 bridge
Railroads 3.2 miles and 1 bridge
Reservoir: 58,500-acre pool area
Dam: Earthfill, 15,300 feet long; 97 feet average height
Roads, Railroads, and Bridges: 7.6 miles roads and 8 bridges
Recreation Facilities: 19 sites
Buildings: 4

Arkabutla Lake:
Lands and Damages: 52,629 acres
Relocations:
Roads 5.5 miles and 5 bridges
Railroads 5.8 miles and 2 bridges
Reservoir: 33,400-acre pool area
Dam: Earthfill, 11,500 feet long; 67 feet average height
Roads: 4 miles
Channel and Canals: 1.5 miles
Recreation Facilities: 11 sites
Buildings: 4

Enid Lake:
Lands and Damages: 43,870 acres
Relocations:
Roads 19.1 miles and 9 bridges
Reservoir: 28,000-acre pool area
Dam: Earthfill, 8,400 feet long; 85 feet average height
Roads: 1 mile
Recreation Facilities: 10 sites
Buildings: 4

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Grenada Lake:

Lands and Damages: 90,356 acres
Relocations:
  Roads 83.2 miles and 47 bridges
  Railroads 21.6 miles and 21 bridges
  1 Cemetery
Reservoir: 64,600-acre pool area
Dam: Earthfill, 13,900 feet long; 80 feet average height
Roads: 4.5 miles and 1 bridge
Recreation Facilities: 20 sites
Buildings: 4

Greenwood:

Lands and Damages: 1,435 acres
Relocations:
  Roads 0.5 mile and 4 bridges
Bank Stabilization: 0.8 mile
Channels: Big Sand Creek Diversion (2.9 miles)
Levees and Floodwalls: 28.4 miles, height 4-6 feet
Pumping Plants: Storm Water: 3-capacity 67, 89, and 675 cubic feet per second

Upper Yazoo Projects:

Lands and Damages: 14,130 acres
Relocations:
  Roads 51 miles and 2 bridges
Channels: 1 cutoff, 179 miles; bottom width of 75 feet to 150 feet
Levees: 209.8 miles levees and 0.2 mile floodwall, average height 6.5 feet, 108 drainage structures and 1 diversion structure
Flood Control and Diversion Structure: One control structure with three 32-foot-wide gate bays
Bank Stabilization: 1.5 miles

Main Stem:

Lands and Damages: 16,560 acres
Relocations:
  Roads 28.9 miles and 10 bridges
  Railroads 1.2 miles
Channels: 43 cutoffs, 251 miles channel clearing and 21 miles channel enlargement (Total miles 288.3)
Levees: 156.1 miles; variable height, 3 to 28 feet
Bank Stabilization: 1.8 miles

Tributaries:

All Work Except Ascalmore-Tippo and Opossum Bayous
Lands and Damages: 40,177 acres
Relocations:
  Roads 7.3 miles and 57 bridges
  Railroads 2.2 miles and 6 bridges
Channels: 442.6 miles
Levees: 147.8 miles; variable height, 3 to 25 feet
Pumping Plant: 1 storm water (McKinney Bayou) 250 cubic feet per second;
  3 Pelucia Creek Pumping Plants, 75, 15, and 10 cubic feet per second
Bank Stabilization: 6.3 miles
  9 Grade Control Structures

Ascalmore-Tippo and Opossum Bayous:

Lands and Damages: 2,601 acres
Relocations:
  Roads 11 bridges
  Railroads 1 bridge
Channels: 50.6 miles
Levees: 12.6 miles; average height 7 feet

Demonstration Erosion Control:

Batupan Bogue Watershed:	
Bank Stabilization	15.5 miles
Major Grade Control Structures	7
Minor Grade Control Structures	21
Otoucalofa Creek Watershed:	
Bank Stabilization	13.2 miles
Minor Grade Control Structures	25
Floodwater Retarding Structures	1
Channel Cleanout	5 miles
Hotophia Creek Watershed:	
Bank Stabilization	2.2 miles
Major Grade Control Structures	9
Minor Grade Control Structures	11
Hickahala and Senatobia Creek Watershed:	
Bank Stabilization	1.0 miles
Major Grade Control Structures	8
Minor Grade Control Structures	40
Channel Cleanout	5 miles
Black Creek Watershed:	
Bank Stabilization	15.8 miles
Major Grade Control Structures	3
Minor Grade Control Structures	56
Floodwater Retarding Structures	2
Long Creek Watershed:	
Bank Stabilization	6.0 miles
Major Grade Control Structures	7
Minor Grade Control Structures	10
Burney Branch Watershed:	
Bank Stabilization	0.4 mile
Abiaca Creek Watershed:	
Minor Grade Control Structures	10
Coldwater River Watershed:	
Minor Grade Control Structures	49
Bank Stabilization	12.6 miles

Big Sunflower River, Etc., Including Steele Bayou:

Lands and Damages: 34,974 acres
Relocations:
Roads 2.0 miles and 68 bridges
Railroads 1 Bridge
Fish & Wildlife Facilities: 9 water control structures

Channels: (miles)	
Big Sunflower River	216
Quiver River	81
Steele Bayou	100
Deer Creek	7
Bogue Phalia	95
Little Sunflower River	28
Hushpuckena River	28
Tributaries	172
Gin and Muddy Bayous	12.3
Total	739.3

1 channel weir
Levees: 9.0 miles, average height 7 feet; 4 gated culverts and 4 fixed crest spillways
Bank Stabilization: 1.0 mile

Yazoo Backwater Including Muddy Bayou Control Structure:

Lands and Damages: 30,203 acres
Relocations:
Roads: 24.3 miles and 2 bridges
Railroads 0.8 mile and 1 bridge
Fish and Wildlife Facilities:
2 Water Control Structures
7 Greentree Reservoirs
5 Slough Control Areas
4 Pumping Stations

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Yazoo Backwater Including Muddy
Bayou Control Structure:
Channels: 38.9 miles, average depth, 25 feet
Levees: 78.5 miles levees, variable height, 5 to 30 feet; 5 floodgates, openings vary in size from 72 square feet to 2,700 square feet
Recreation Facilities: 2 boat launching ramps
Floodway Control and Diversion Structures:
Muddy Bayou Control Structure (opening size 480 square feet)
Rocky Bayou Area:
Lands and Damages: 1,140 acres
Relocations:
Roads 7.0 miles
Levees: 19.0 miles

Yazoo Backwater Pumping Plant:
Lands and Damages: 378 acres project lands
Relocations:
Roads 1.0 mile and 1 bridge
Channels: 1.9 miles
Levees: 0.5 miles, variable height 7 to 30 feet
Pumping Plant: One 10,000 cubic feet per second

Yazoo Backawater, Fish and Wildlife Mitigation:
Lands and Damages: 40,000 acres

Streambank Erosion Evaluation and Demonstration:
Bank Stabilization: 65.0 miles

JUSTIFICATION: The Yazoo Headwater feature will protect 1,209,000 acres against overflow, substantially benefit 303,000 acres and protect Greenwood, Belzoni, Yazoo City and numerous smaller communities. Channel improvement work on the Big Sunflower River and its tributaries will protect 195,000 acres against the design flood and an additional 395,000 acres will be benefited because of improved drainage conditions. Also, approximately 368,000 acres in the Yazoo Backwater Area will be protected against all but the larger floods and substantial benefits will accrue to an additional 224,000 acres from improved drainage. Had there been no protection in 1958, the floods of April-June and September would have caused damages amounting to $21,922,000. Should these floods recur under present conditions, but with the flood control works assumed complete, damages amounting to $163,494,000 would be prevented. In addition, the four Yazoo Basin lakes are being used extensively for recreation. A continual expansion of facilities is required to meet public demand for recreation opportunities. Visitor attendance increased from 2,857,000 visitor days in calendar year 1958 to 30,602,000 visitor hours in 1989. The total annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$127,843,000
Fish and Wildlife	7,143,000
Recreation	18,557,000
Area Redevelopment	1,234,000
Bank Stabilization Works	1,478,000
Total	$156,255,000

Environmentalists have expressed substantial opposition to the Upper Yazoo Projects, the upper Steele Bayou portion of the Big Sunflower River, Etc., and the Yazoo Backwater pumping plant. Governor Ray Mabus convened a special Advisory Committee to evaluate the Yazoo Basin projects and their implementation and to advise the Governor on alternatives for resolving conflicting issues. The Committee prepared a majority report for Governor Mabus in February 1989 recommending steps for the Governor to take. As a result of these events, the Corps has undertaken a reformulation study of the remaining unconstructed features of the Yazoo Basin project. Funds are provided in FY 1991 to continue the study. The purpose of the study is to reformulate the project with emphasis on increasing urban flood protection, decreasing agricultural intensification and reducing adverse environmental impacts. The study assumes all features scheduled to be placed under contract in FY 1990 are in place. The study will be completed in phases, and interim reports will be prepared beginning in FY 1992.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Upper Yazoo Projects:	
Continue: Lands and Damages	$ 50,000
Item 3A-2	739,000
Complete: Utility Relocations Item 3A-2	37,000
Engineering and Design	1,000,000
Supervision and Administration	449,000
Subtotal	$2,275,000
Tributaries:	
All Work Except Ascalmore-Tippo and Opossum Bayous:	
Continue: Lands and Damages	507,000
Pelucia Creek, Item 2	1,959,000
Engineering and Design	714,000
Supervision and Administration	1,020,000
Subtotal	$ 4,200,000

Demonstration Erosion Control:	
Initiate:	
Batupan Bogue Watershed:	
4 Grade Control Structures	$ 275,000
Otoucalofa Creek Watershed:	
Floodwater Retarding Structure	625,000
Hickahala Creek Watershed:	
4 Grade Control Structures	578,000
Coldwater River Watershed:	
Phase I, II, and III Bank Stabilization	834,000
Black Creek Watershed:	
2 Flood Control Retarding Structures	770,000
Initiate and Complete:	
Batupan Bogue Watershed:	
Bank Stabilization Little Bogue and Big Bogue	180,000
Hotophia Creek Watershed:	
1 Grade Control Structure	281,000
Hickahala Creek Watershed:	
10 Riser Pipe Grade Control Structures	268,000
1 Grade Control Structure	281,000
Long Creek Watershed:	
Bank Stabilization Caney Creek	103,000
Black Creek Watershed:	
Bank Stabilization Harland Creek	154,000
10 Riser Pipe Grade Control Structures	268,000
Abiaca Creek Watershed:	
10 Riser Pipe Grade Control Structures	268,000
Coldwater River Watershed:	
18 Riser Pipe Grade Control Structures	482,000

Demonstration Erosion Control:	
Continue:	
Lands and Damages	$ 2,071,000
Road and Bridge Relocations	382,000
Complete:	
Utilities	100,000
Engineering and Design	2,756,000
Supervision and Administration	1,324,000
Subtotal	$12,000,000
Big Sunflower, Etc., Including Steele Bayou:	
Continue: Lands and Damages	$ 20,000
Steele Bayou, Items 66B	851,000
Site Weir A and B	1,600,000
Complete: Channel Weir C and D	511,000
Swan Lake Pipe Arch Structure	571,000
Item 66B, Weir E	253,000
Engineering and Design	496,000
Supervision and Administration	298,000
Subtotal	$ 4,600,000
Yazoo Backwater Fish and Wildlife Mitigation Lands:	
Continue: Lands and Damages	$ 250,000
Subtotal	$ 250,000
Reformulation Study:	
Engineering and Design	$ 5,641,000
Supervision and Administration	259,000
Subtotal	$ 5,900,000
TOTAL	$29,225,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the initial authorization and subsequent authorized modifications of the Yazoo Basin project including the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the following requirements.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Will M. Whittington:		
Pay 25 percent of the first costs allocated to fish and wildlife enhancement and pay 25 percent of the costs of operation, maintenance, and replacement of fish and wildlife facilities	$189,000	$57,000
Subtotal Non-Federal Costs	$189,000	$57,000
Big Sunflower River, Etc., Including Steele Bayou:		
Provide 25 percent of lands allocated to fish and wildlife enhancement.	$ 43,000	
Pay 25 percent of the first costs allocated to fish and wildlife enhancement and pay 25 percent of the costs of operation, maintenance, and maintain and operate fish and wildlife facilities and perform minor maintenance on the project.	450,000	$37,000
Provide lands, easements, rights-of-way, and dredged material disposal areas	30,000	
Subtotal Non-Federal Costs	$523,000	$37,000
Main Stem:		
Provide lands, easements, rights-of-way, and dredged material disposal areas	$ 11,000	
Subtotal Non-Federal Costs	$ 11,000	
Yazoo Backwater Including Muddy Bayou Control Structures:		
Pay 25 percent of the first costs allocated to fish and wildlife enhancement and pay 25 percent of the costs of operation, maintenance, and replacement of fish and wildlife facilities	$ 158,000	$24,000
Subtotal Non-Federal Costs	$ 158,000	$24,000

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Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Rocky Bayou:		
Provide lands, easements, rights-of-way, and dredged material disposal areas	$1,247,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project	1,300,000	
Pay 5.5 percent of the remaining costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, and replacement of flood control facilities	1,053,000	$30,000
Subtotal Non-Federal Costs	$3,600,000	$30,000
Yazoo Backwater Pumping Plant:		
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project	$ 2,218,000	
Pay 22.4 percent of the remaining costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, and replacement of flood control facilities	19,082,000	$741,000
Subtotal Non-Federal Costs	$21,300,000	$741,000
Total Non-Federal Costs	$25,781,000	$889,000

STATUS OF LOCAL COOPERATION:

Flood Control:

Local cooperation is not required for the Yazoo Headwater Unit.

Assurances to operate the Big Sunflower River Unit and perform minor maintenance have been accepted from the Yazoo-Mississippi Delta Levee District and the Board of Mississippi Levee Commissioners. Formal assurances for work in the Steele Bayou Basin were accepted 8 June 1972 without the requirement that local interests "construct or have constructed by others, the necessary associated interior drainage works." The requirements of PL 91-646 are a Federal responsibility.

For the Yazoo Backwater unit, assurances of local cooperation have been accepted from the Board of Mississippi Levee Commissioners and the Yazoo-Mississippi Delta Levee District. Supplemental assurances covering the requirements of local cooperation as provided for in the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970" (PL 91-646), were accepted 7 August 1972. The Board of Levee Commissioners for the Yazoo-Mississippi Delta, non-Federal sponsor for the Rocky Bayou, and the Board of Levee Commissioners for the Mississippi Levee District, non-Federal sponsor for the Backwater Pumping Plant, have been notified of the cost-sharing requirements of the Water Resources Development Act of 1986. The Board of Commissioners for the Mississippi Levee District indicated by letter dated 3 November 1988 they cannot agree to any form of cost sharing for the Yazoo Backwater Pumping Plant. The Board of Levee Commissioners for the Yazoo-Mississippi Delta has not responded concerning their intentions to cost share. As a result, no schedule has been developed for execution of the Local Cooperation Agreements.

Recreation:

The State of Mississippi, which provided assurances that it would operate and maintain Corps constructed recreation facilities at the Yazoo Basin lakes, has notified the Vicksburg District that it is unable to fully comply with the assurances in a formal 1967 agreement. Funds for construction of additional recreation facilities at two sites in the Yazoo Basin were appropriated in Fiscal Years 1981 and 1982. Because of the inability of the State of Mississippi to fully comply with its previous assurances, construction of these recreation facilities at the Upper Torrance Landing and Skuna-Turkey Creek sites at Grenada Lake has been delayed indefinitely.

Fish and Wildlife:

Local cooperation agreements will be obtained when planning is more advanced.

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COMPARISON OF FEDERAL COST ESTIMATES: The current cost estimate of $1,578,000,000 is an increase of $212,000,000 from the latest estimate ($1,366,000,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 184,036,000
Design Changes	12,000,000
Post Contract Award and Other Estimating Adjustments	15,964,000
Total	$ 212,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Final Environmental Impact Statements have been filed with the Council on Environmental Quality or with the Environmental Protection Agency as follows:

Project Unit	Date
Upper Yazoo Project	16 January 1976
Main Stem	16 January 1976
Tributaries (Except Ascalmore-Tippo and Opossum Bayou)	16 January 1976
Ascalmore-Tippo and Opossum Bayou	6 June 1975
Demonstration Erosion Control	1/
Big Sunflower	16 January 1976
Yazoo Backwater	16 January 1976

1/ The appropriate National Environmental Policy Act documentation will include preparation of an Environmental Impact Statement if environmental impacts are determined to be significant.

OTHER INFORMATION:

Funds to initiate construction were appropriated in FY 1936.

The Upper Yazoo Projects have experienced considerable delays in construction during the past 4 years. A major part of these delays have been caused by landowners who object to furnishing construction rights-of-way for the project. Environmentalists have expressed substantial opposition to the Upper Yazoo Projects, the upper Steele Bayou portion of the Big Sunflower River, Etc., and the Yazoo Backwater pumping plant. Governor Ray Mabus convened a special Advisory Committee to evaluate the Yazoo Basin projects and their implementation and to advise the Governor on alternatives for resolving conflicting issues. The Committee prepared a majority report for Governor Mabus in February 1989 recommending steps for the Governor to take. As a result of these events, the Corps has undertaken a reformulation study of the remaining unconstructed features of the Yazoo Basin project. Funds are provided in FY 1991 to continue the study. The purpose of the study is to reformulate the project with emphasis on increasing urban flood protection, decreasing agricultural intensification and reducing adverse environmental impacts. The study assumes all features scheduled to be placed under contract in FY 1990 are in place. The study will be completed in phases, and interim reports will be prepared beginning in FY 1992.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN - Construction

PROJECT: Nonconnah Creek, Tennessee and Mississippi (Continuing)

LOCATION: The Nonconnah Creek Basin is located in portions of Shelby and Fayette counties in southwest Tennessee and extends into DeSoto and Marshall counties in northwest Mississippi. Approximately half of the city of Memphis, Tennessee, is located within the drainage area.

DESCRIPTION: The plan provides for 7.7 miles of channel enlargement, 10.5 miles of channel clearing, 8.8 miles of bike/hike trails, 0.8 miles of nature trail, and a 33-acre nature area. Channel enlargement and channel clearing are scheduled for construction. The recreation and fish and wildlife enhancement features are not scheduled for construction, as they are inconsistent with current policy.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 2.0 to 1 at 8-5/8 percent.

TOTAL BENEFIT-COST RATIO: 1.4 to 1 at 8-5/8 percent.

INITIAL BENEFIT-COST RATIO: 1.8 to 1 at 8-5/8 percent (FY 1990).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in November 1987 at October 1989 price levels.

SUMMARIZED FINANCIAL DATA			
Estimated Federal Cost			$16,600,000
Scheduled Construction		$16,094,000	
Unscheduled Construction		$ 506,000	
Estimated Non-Federal Cost			$ 5,600,000
Scheduled Construction		$ 5,311,000	
Cash Contributions	$ 2,800,000		
Other Costs	$ 2,511,000		

STATUS (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Channels	9	Sep 1994
Recreation and Fish and Wildlife	0	Indefinite
Entire Project	9	Sep 1994

				Accum Pct. of Est. Fed Cost
Estimated Non-Federal Cost				
Unscheduled Construction		$ 289,000		
Cash Contributions	$ 0			
Other Cost	289,000			
Total Estimated Scheduled Construction		$21,405,000		
Total Estimated Unscheduled Construction Cost		$ 795,000		
Total Estimated Project cost		$22,200,000		
Allocations to 30 September 1989		$ 1,743,000		
Conference Allowance for FY 1990		$ 1,500,000		
Allocation for FY 1990		$ 1,500,000	1/	
Allocations through FY 1990		$ 3,242,000		19
Allocation Requested for FY 1991		$ 3,500,000		40
Scheduled Balance to Complete After FY 1991		$ 9,351,000		
Unscheduled Balance to Complete After Fy 1991		$ 506,000		

PHYSICAL DATA	
Lands and Damages:	633 acres
Flood Control	600 acres
F&WL Enhancement	33 acres
Relocations:	
Railroads	2 bridges
Utilities	33 facilities
Channels:	
Enlargement	7.7 miles
Vegetative Clearing	10.5 miles
Recreation:	
Bike/Hike Trails	8.8 miles
Nature Trail	0.8 miles

1/Reflects $103,000 reduction assigned as savings and slippage, $20,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $123,000 reprogrammed to the project.

JUSTIFICATION: Flood protection is needed for 7,400 homes, businesses, and public buildings on 12,000 acres of urban and urbanizing lands located within the Nonconnah Creek flood plain inundated by the standard project flood. With the proposed Soil Conservation Service structures on Johns Creek assumed in place, over 7,300 structures (6,200 residential and 1,100 commercial and industrial structures) and 9,700 overbank acres along the urban area of Nonconnah Creek would be subjected to flooding from the standard project flood. No change in land use within the floodplain is projected due to construction of the flood control project, nor will any permanent deposition of material be placed in wetlands. Major floods occurred in the basin on 21 November 1934, when 10.48 inches of rain fell in 24 hours, and on 9 May 1958, when 4.76 inches of rain fell in approximately eight hours. The most recent significant flood occurred on 3 December 1978, when 4.9 inches were recorded at the Memphis International Airport. The 1978 storm appears to be between the 5-year and 10-year frequency events. Under present day conditions, the 1934 and 1958 flood levels would cause considerably higher damages due to increased urbanization. The Nonconnah Creek standard project flood, under existing conditions with three Johns Creek reservoirs assumed in place, would cause approximately $363,000,000 (October 1989 price levels) in flood damages. Total average annual benefits are as follows:

Annual Benefits	Amount
Flood Damage Prevention (Urban)	$ 1,231,000
Existing	(1,186,000)
Future	(45,000)
Other Flood Control Benefits	651,000
Location	(182,000)
Value of Excavated Material	(136,000)
Bridge Safety	(333,000)
Recreation	448,000
Fish and Wildlife Enhancement	19,000
Total	$ 2,349,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate:	
Item 1, Channel Improvements, Mi. 0.0 - 6.2	$ 286,000
Initiate and Complete:	
Railroad Bridge, Mi. 8.49	53,000
Complete:	
Item 1A, Bridge Protection	2,391,000
Engineering and Design	220,000
Supervision and Administration	550,000
Total	$ 3,500,000

NON-FEDERAL COST: In accordance with the cost sharing and financial concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$ 1,550,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges) and other facilities where necessary in the construction of the project.	961,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance and replacement of recreation facilities.	180,000	$ 8,000
Pay 13 percent of the cost allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent; and bear all costs of operation, maintenance and replacement of flood control facilities.	2,800,000	6,000
Pay 25 percent of the first costs allocated to fish and wildlife enhancement and pay 25 percent of the costs of operation, maintenance and replacement of fish and wildlife facilities.	109,000	
Total Non-Federal Costs	$ 5,600,000	$ 14,000

The Non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The local sponsor, the City of Memphis, is aware of the cost-sharing requirements reflected in the Water Resources Development Act of 1986. The Local Cooperation Agreement is scheduled to be executed in January 1990.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $16,600,000 is an increase of $ 2,300,000 from the latest estimate ($14,300,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	+$ 240,000
Design Changes	+2,060,000
Total	+$2,300,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final supplemental Environmental Impact Statement was filed with the Environmental Protection Agency on 22 July 1982. Environmental assessments were made during Phase II General Design Memorandum studies, and changes were not of significant magnitude to warrant modifying the project Environmental Impact Statement.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1986, and funds to initiate construction were appropriated in FY 1990. The congressional authorization provides for development to be implemented by the Corps of Engineers, the United States Department of Agriculture and the local sponsoring organizations. The Department of Agriculture has responsibility for construction of three flood-water control structures on the Johns Creek tributary and for implementation of a basin-wide program of land treatment for erosion and sediment control on 35,010 acres. Implementation of the plans of improvement by the Corps of Engineers and the Department of Agriculture are not dependent on each other for justification or functioning.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN - Construction

PROJECT: West Tennessee Tributaries, Tennessee (Continuing)

LOCATION: The project is located along the Obion and Forked Deer Rivers and their forks in West Tennessee, in Weakley, Madison, Gibson, Obion, Dyer, Crockett, Lauderdale and Haywood Counties, Tennessee.

DESCRIPTION: The project consists of improving 119 miles of channels of the Obion River and its principal tributaries, the North, South, Middle and Rutherford Fork; and improving 106 miles of channels of the Forked Deer and its North, South, and Middle Forks to provide adequate drainage outlets and reduce the frequency, depth, and duration of overflow. The work consists of clearing, cleanout, enlargement, and realignment of channels and construction of 7.6 miles of levee from Porter Gap to Island 25 on the Obion River. All work is scheduled.

AUTHORIZATION: Flood Control Acts of 1948 and 1966 and the Water Resources Development Acts of 1974 and 1976.

REMAINING BENEFIT - REMAINING COST RATIO: 2.1 to 1 at 2-1/2 percent.

TOTAL BENEFIT - COST RATIO: 2.2 to 1 at 2-1/2 percent.

INITIAL BENEFIT - COST RATIO: 2.6 to 1 at 2-1/2 percent (FY 1960).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation approved in August 1983 at 1983 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$120,000,000
Estimated Non-Federal Cost		$ 3,750,000
Cash Contribution	$0	
Other Costs	$3,750,000	
Total Estimated Project Cost		$123,750,000

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	41	Apr 2009

		Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1989	$ 39,334,000	
Conference Allowance for FY 1990	1,400,000	
Allocation for FY 1990	300,000 1/	
Allocations through FY 1990	$ 39,634,000	33
Allocation Requested for FY 1991	$ 100,000	
Scheduled Balance to Complete After FY 1991	$ 80,266,000	
Unscheduled Balance to Complete After Fy 1991	0	

1/ Reflects $96,000 reduction assigned as savings and slippage, $18,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $986,000 reprogrammed from the project.

PHYSICAL DATA

Lands and Damages	32,000 acres
Relocations	
Roads	13 bridges
Railroads	7 bridges
Channels	
Obion River	54 miles
Obion River Forks	65 miles
Forked Deer River	5 miles
Forked Deer River Forks	101 miles
Total	225 miles
Levees and Floodwalls	7.6 miles

JUSTIFICATION: The project is a flood control and drainage project and is a unit of the Comprehensive Plan for Flood Control, Mississippi River and Tributaries. The floods of record in 1935 and 1937 overflowed 455,000 acres of cleared and wooded area. This entire area will receive benefits from project construction due to accelerated flood runoff thus reducing duration of overflow periods; however, benefits will accrue upon completion of each item of construction. Project construction will also eliminate overflow during the crop season on about 239,221 acres (162,644 cleared and 76,577 wooded). The principal population centers of the drainage basin include Jackson, Dyersburg, Union City, Humboldt, Trenton, and Milan, all in Tennessee, and Fulton, Kentucky. Farming, including truck farming, stock raising and dairying, is the principal occupation throughout the basin. Construction of the project will tend to stabilize the area's predominately agricultural economy. The project is credited with redevelopment benefits, benefits from flood damages prevented and benefits from a higher land use made possible by reduced flooding. Total average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$2,331,000
Area Redevelopment	27,000
Advance Replacement	30,000
Betterments	8,000
Recreation	1,352,000
Timber	702,000
Total	$4,450,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue:	
Lands and Damages	$ 20,000
Engineering and Design	70,000
Supervision and Administration	10,000
Total	$ 100,000

NON-FEDERAL COST: In accordance with the Flood Control Acts of 1948 and 1966 and the Water Resources Development Acts of 1974 and 1976, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, and rights-of-way.	$3,535,000	
Modify or relocate buildings and roads not crossing the project channels where necessary in the construction of the project.	215,000	
Pay all costs of operation, maintenance, and replacement of flood control facilities.		$344,000
Total Non-Federal Costs	$3,750,000	$344,000

STATUS OF LOCAL COOPERATION: Necessary assurances were furnished by the Obion-Forked Deer Basin Authority on 2 June 1972 and were accepted on 14 June 1972. Section 221 of the Flood Control Act of 1970 (PL 91-611) is not applicable to other items of work but is required by Section 3 of the Water Resources Development Act of 1974 (PL 93-251) for the mitigation lands and for the levees authorized by the Water Resources Development Act of 1976 (PL 94-587). Assurances have not been furnished for the levees authorized by the Water Resources Development Act of 1976 (PL 94-587).

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COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $120,000,000 is an increase of $10,000,000 from the latest estimate ($110,000,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ +6,405,000
Post Contract Award and Other Estimating Adjustments	-127,000
Price Escalation on Real Estate	+3,722,000
Total	$+10,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A fully coordinated Environmental Impact Statement in final form was forwarded to the Council on Environmental Quality on 4 May 1971. Court action on 2 March 1973 rejected the statement, directed revision of the statement, and stated that the revised statement was subject to District Court review. A final Environmental Impact Statement was submitted to the Council on Environmental Quality on 21 July 1975, and published in the Federal Register on 1 August 1975. The statement was determined inadequate and the injunction was continued by court decision dated 27 January 1978. A supplement to the statement has been prepared to eliminate the deficiencies identified in the Memorandum Decision of 27 January 1978. The draft supplement to the statement was provided to the public for review and to the Environmental Protection Agency for filing and review on 29 April 1982. The final supplement to the statement was forwarded to the Environmental Protection Agency on 9 February 1983. The notice appeared in the Federal Register on 25 February 1983. The Record of Decision was signed by President, Mississippi River Commission on 8 August 1983.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1959 and for construction in FY 1960.

As the result of a lawsuit filed on 23 April 1970, the District Court found the Environmental Impact Statement to be inadequate on 2 March 1973, and enjoined any further construction. On 9 May 1985, the District Court lifted this injunction that had prohibited the Corps from working on portions of the project. Another suit was filed on 23 August 1985 which challenged the Environmental Impact Statement. The District Court denied the request for a temporary restraining order on 23 August 1985 and denied the request for a preliminary injunction on 30 August 1985. The Corps filed a Motion to Dismiss the case which was granted by the Court on 5 December 1985. A Notice of Appeal was filed by the Plaintiff on 2 January 1986 to the Sixth Circuit Court of Appeals. On 13 March 1987, the U.S. Sixth Circuit Court of Appeals dismissed the appeal as an impermissible collateral attack. On 18 June 1986 Chester McConnell and Tennessee Environmental Council filed in Chancery Court of Davidson County an appeal and request for judicial review of Water Quality Control Board's final decision and order on Fowlkes Items 1-1 and 1-2 dated 8 May 1986. The Chancery Court affirmed the Board's decision and final order on 18 March 1987. Petitioners appealed to the Court of Appeals of Tennessee, Middle Section, at Nashville, App. No. 87-234-II. On 4 December 1987, the case was remanded to the Tennessee Water Quality Control Board for further findings of facts and conclusions of law in relation to the issue of "issuance of permits for projects involving a portion of the subject river without considering the effect of such projects and/or any other contemplated projects upon the entire river." The Tennessee Water Quality Control Board considered the remanded issue at a hearing on 20 January 1988. Findings of Facts and Conclusions of Law were issued by the Board after affirming their previous decision.

Water quality certification for the next planned construction item, Sidonia, was denied by the Tennessee Department of Health and Environment on 18 June 1987. The Corps appealed this decision, but after numerous meetings and discussions with the State in an attempt to arrive at a mutually agreeable plan of improvement for the Sidonia Item with no apparent resolution forthcoming, the Corps withdrew the appeal in May 1989. The Corps will not proceed with further construction or acquisition of related mitigation lands until the State of Tennessee provides water quality certification and necessary rights-of-way for construction of the project. The minimal funds requested for FY 1991 will be used to continue project management, project planning, required real estate activities, and working with the Tennessee Department of Transportation to ensure that any problems related to stream crossings have been corrected prior to placing the project in an inactive status.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Dam Safety Assurance

PROJECT: Sardis Dam, Mississippi (Continuing)

LOCATION: The project is located in Mississippi approximately 50 miles south of Memphis, Tennessee, on Sardis Lake Reservoir.

DESCRIPTION: The improvements at Sardis Dam are required to assure that the dam will remain stable during a major earthquake in this region. These improvements consist of constructing a stability berm in one area and constructing subsurface reinforcing columns through a weak layer of soil beneath the upstream slope of the dam in two areas. All work is scheduled.

AUTHORIZATION: Flood Control Acts of 1936 and 1941.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable under the Dam Safety Assurance Program.

TOTAL BENEFIT-COST RATIO: Not applicable under the Dam Safety Assurance Program.

INITIAL BENEFIT - COST RATIO: Not applicable under the Dam Safety Assurance Program.

BASIS OF BENEFIT-COST RATIO: Not applicable under the Dam Safety Assurance Program.

SUMMARIZED FINANCIAL DATA			STATUS (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$29,300,000	Entire Project	18	Sep 1993
Estimated Non-Federal Cost		0			
Cash Contribution	0				
Other Costs	0				
Total Estimated Project Cost		$29,300,000			

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		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1989	$ 6,181,000	
Conference Allowance for FY 1990	550,000	
Allocation for FY 1990	181,000 1/	
Allocations thru FY 1990	6,362,000	22
Allocations Requested for FY 1991	555,000	24
Scheduled Balance to Complete After FY 1991	22,383,000	
Unscheduled Balance to Complete after FY 1991	0	

1/ Reflects reduction of $38,000 assigned as savings and slippage, $7,000 sequestered in accordance with Gramm-Rudman-Hollings Act and $324,000 reprogrammed from the project.

PHYSICAL DATA

Sardis Dam:

Dams: Addition of a berm approximately 1,000 feet long along the upstream slope of the dam; approximate height above the reservoir floor of 45 feet. Installation of reinforcing columns along approximately 3,000 feet of the upstream slope of the dam.

JUSTIFICATION: Sardis Dam is located in a seismic zone which is affected by the New Madrid fault system. The New Madrid fault was responsible for three significant earthquakes occurring between January 1811 and February 1812. These earthquakes measured in excess of 8.0 on the Richter scale and were felt as far away as Chicago, IL, and Washington, D.C. The Reelfoot Lake region of northwestern Tennessee was created as a result of ground subsidence triggered by these seismic events. Smaller earthquakes have continued to emanate from this area until the present. The distance to the New Madrid fault zone is approximately 70 to 175 miles north to northwest of Sardis Dam. A field investigation program has located a potentially liquefiable weak layer in a portion of the foundation of the dam under the upstream face. Dynamic studies and analysis performed to date indicate that during a major earthquake from the New Madrid region, the upstream face of the dam could possibly slide into the lake resulting in the potential failure of Sardis Dam and loss of the pool.

Failure of Sardis Dam would cause significant damage. Depending upon the water level in the reservoir, a failure of Sardis Dam would affect between 49,000 to 115,000 people, based upon the 1980 census, and between 580,000 to 1,271,000 acres would be flooded. This includes the towns of Batesville, Belzoni, Charleston, and Greenwood, MS. This could cause a maximum of $1,213 million in damages (October 1989 price level).

FISCAL YEAR 1991: The requested amount of $555,000 will be applied as follows:

Initiate: Working platform	$100,000
Continue: Miscellaneous Hired Labor	6,000
Engineering and Design	404,000
Supervision and Administration	45,000
Total	$555,000

NON-FEDERAL COST: None.

STATUS OF LOCAL COOPERATION: None required.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $29,300,000 is a decrease of $1,300,000 from the latest estimate ($30,600,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation of Construction Features	$-1,981,000
Postcontract Award and Other Estimating Adjustments	$ 681,000
Total	$-1,300,000

OTHER INFORMATION: Funds to initiate Dam Safety Assurances were appropriated in FY 1985.

MISSISSIPPI RIVER COMMISSION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, and TN, Maintenance, Fiscal Year 1991

The program request of $121,000,000 provides for the day-to-day operation and ordinary maintenance, and repairs and dredging of the major features of the comprehensive project. It also consists of the revision and publication of alluvial valley maps and navigation charts. The fund requirements are based upon the normal recurring annual expenses determined from experience records during the past years, and the repair and dredging work necessary to maintain the projects in operable condition.

OBLIGATIONS

	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
Mississippi River Levees AR, IL, KY, LA, MS, MO	7,486,500	4,836,000	6,922,000	Variation in essential levee setback requirements.
Bonnet Carre, LA	880,500	750,000	653,000	Increased structure maintenance, water quality monitoring and equipment purchases in FY 1989 and construction of the Administration Building in FY 1990.
Channel Improvement:				
Revetments and Dikes	39,814,100	35,735,000	41,385,000	Increased repairs to revetments and dikes in FY 1989 and FY 1991.
Dredging	11,631,100	18,511,000	21,502,000	Variation in dredging requirements.
Memphis Harbor (McKellar Lake), TN	2,982,100	1,103,000	1,239,000	Variation in dredging requirements.
Greenville Harbor, MS	319,600	161,000	216,000	Variation in dredging requirements.
Vicksburg Harbor, MS	261,200	178,000	157,000	Variation in dredging requirements.

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MISSISSIPPI RIVER COMMISSION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, and TN, Maintenance, Fiscal Year 1991

OBLIGATIONS

	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
Baton Rouge Harbor (Devil's Swamp), LA	57,600	401,000	170,000	Variation in dredging requirements.
Mapping, AR, IL, KY, LA, MS, MO, & TN	888,900	693,000	803,000	Additional quadrangle maps printed in FY 1989 and FY 1991.
St. Francis Basin, AR & MO:				
Wappapello Lake, MO	3,920,200	2,746,000	3,048,000	Survey boundaries in FY 1989; Repair access roads in FY 1989 and FY 1991.
St. Francis River & Tributaries	9,657,200	8,499,000	7,998,000	Channel maintenance at Madison - Highway 64 in FY 1989.
White River Backwater, AR	2,140,300	918,000	521,000	Perform additional levee protection in in FY 1989 and repair levees in FY 1990.
Lower Arkansas River, AR:				
North Bank	366,600	192,000	679,000	Drainage structure repair in FY 1989 and levee repair in FY 1991.
South Bank	586,300	415,000	151,000	Repair drainage structure in FY 1989 and levee slides and wave wash in FY 1990.

19 JAN 1990

YAZOO BASIN, MISSISSIPPI REFORMULATION STUDY

Mr. Bevill. The Chair recognizes Chairman Whitten.

Mr. Whitten. I would just like to commend General Williams and his staff for the work they are doing. They have lots of important projects going on at the present time. Since many of the decisions made earlier on the Yazoo Basin project were made based on practices and policies then in effect, there are some who do not think those decisions need to be restudied.

The facts are that in eight years, the Nation's debt has increased to $3 trillion, more than owed by any nation in history. And those policies that say we do not need to keep land in production are partly to blame. We have given away our exports in agricultural commodities, and we have opened up our doors for all imports to come in here.

That being true, the facts on which many of these decisions are based are just erroneous and the result is short-sighted Government policy. At the same time, we all recognize that we want to improve the environment, and we want to protect the environment.

But in the process, the failure to look after this important section of the United States with this development is shortsighted. However, we need to study to just be sure that we have given proper attention to all these various things.

And I want to say that 10 years ago the richest part of the United States was the Delta area of Mississippi. My Congressional district is now in the hill area. Now, the Delta area of the country has just dried up, and the reports from the Department of Agriculture confirm this.

So I just want to say again that we are with you. We do not want to return to times when we might have been negligent with regards to the environment. Whatever we do, we want to give maximum attention to the environment, to protecting it and developing it.

The other thing we have is that everything man does in turning the use of the country over to his own service, his own needs affects the environment. But in the process, we want to do a minimum of environmental damage. It is not bad to review these projects, but in the final analysis, we have got to look at the present day needs. I just want to say thank you. I am proud of the service you provide, and I am proud of you folks.

MISSISSIPPI RIVER DRAINAGE BASIN COST SHARING

When 41 percent of all the rainfall in the continental United States except Alaska comes down on us in the lower Mississippi Valley, it was a serious mistake to make us pay a part of the cost to take care of the other fellow's water. The House did not go along with that—but in conference, we were forced to.

So again, I give you my support, our support. Mr. Bevill and the members of this committee have been very much interested in your program.

CAPITAL EXPENDITURES

One of the things that I think we ought to do in Congress, which is to the point here, is recognize investment spending. A project may last 100 years, but we charge it up to a year's expenses. We need to change the rules here, where we consider how many years it will provide service.

But I just want you to know that you have the support of this subcommittee. Mr. Bevill and the others can speak for themselves, but they have done a great job in looking after our country, and we have all got to do that.

The current situation is a result of a policy where we are not using what we have. It is not because of what we spend on our own country, it is what we have wasted in other areas.

Gentlemen, thank you a whole lot.

Thank you, Mr. Chairman, and let us move ahead.

Mr. BEVILL. Mrs. Boggs?

Mrs. BOGGS. Thank you, Mr. Chairman.

Welcome, friends. Thank you for your very fine presentation, General. You have multiple responsibilities, and you, with the help of your colleagues, handle them so very well.

MISSISSIPPI RIVER SHIP CHANNEL, GULF TO BATON ROUGE, LOUISIANA

I was interested in the construction of the Mississippi River Ship Channel. I have noticed in the testimony of the various Corps of Engineers division engineers who have been before us that there are a number of channel construction projects at ports at various locations throughout the country. Just yesterday, I think it was, we heard about one in Norfolk Harbor, a 55 foot deep project and one in Baltimore to a 50 foot depth.

What is the status of the construction of the Mississippi River Ship Channel? What is the next step to bring navigation to Baton Rouge?

General WILLIAMS. Well, as you know, in December of 1988, we completed the 45 foot channel to mile 181, which is near Donaldsonville.

The next reach that we would construct would be from that point up to Baton Rouge. The State would like us to do that. We are finishing up our GDM and some of the designs this year, and we would probably be ready to go with that in the Fiscal Year 1992 time frame.

Mrs. BOGGS. What is the status of bringing the channel down to 55 foot depth?

General WILLIAMS. There are no plans—it is authorized, as you know, up to Baton Rouge with the 55 foot depth. We do not have anything underway now to take it down to that depth.

Mrs. BOGGS. Is that a cost sharing problem? What is the problem there?

General WILLIAMS. The interest has not been expressed by the State to date, that I am aware of, and I think what we will do, obviously, is work with the State, and when the need gets to the point where they need to have that 55 foot depth, then we will continue on with the State to do that.

Mrs. BOGGS. I have an additional question which I will submit for the record.

[The information follows:]

MITIGATION OF SALTWATER INTRUSION

Mrs. Boggs. What is the current status of efforts to mitigate saltwater intrusion in the River as a result of the deeper channel?

General Williams. Mrs. Boggs, we are currently involved in negotiations with Plaquemines Parish and the State of Louisiana on providing facilities to permanently mitigate for increased saltwater intrusion caused by the 45-foot channel for lower Plaquemines Parish. We are proposing that a one-time payment be made to Plaquemines Parish to pay for improvements the Parish would make to their water system. This payment would be shared by the State of Louisiana based on the Local Cooperation Agreement for this project, which requires that they pay 25 percent of all construction costs. This one-time payment would relieve the Government of the responsibility for saltwater intrusion mitigation for the 50-year project life caused by the 45-foot channel and eliminate the possible yearly need for barging freshwater to the Parish. A design memorandum for this work is scheduled for completion in May 1990.

Until this permanent mitigation is provided, the underwater sill, which was first used in 1988, will be reconstructed whenever necessitated by saltwater intrusion. The sill is effective in containing saltwater intrusion that would otherwise reach upstream municipal water intakes.

SOUTHWEST PASS

Mrs. Boggs. As you said in your testimony, your work at the Southwest Pass has been funded under the O&M account for the past couple of years.

General Williams. Yes, ma'am.

Mrs. Boggs. Has there been any appreciable change in the funding for this project since it was switched from the Construction account? Have there been any problems with it?

General Williams. No, ma'am, there has not. It is funded to take care of all of our needs, both in the Construction and the Operation and Maintenance accounts.

Mrs. Boggs. Have there been any problems with maintaining the project depth of the river at Southwest Pass? Are navigation interests being adequately served there?

General Williams. Occasionally we will have a problem, especially if a ship in the channel goes aground. Then we have to go in and do some dredging. But we are doing our best to try to maintain the channel to the authorized project dimensions. We have had some occasional problems.

Mrs. Boggs. Is there anything that we can do to avoid that type of difficulty?

General Williams. Well, I think it is a combination of things.

If there were enough money to maintain the project 100 percent of the time and 100 percent of the dimensions, that is one thing. In addition to that, I guess you could say that if you had more dredging equipment to keep down there—but putting everything together and making the hard decisions of how much money is available and what you are trying to accomplish, I think that we are probably doing the best we can, right now.

WEST BANK HURRICANE PROTECTION

Mrs. Boggs. What is the status of the construction of the authorized portion of the Harvey to Westwego portion of the West Bank of Jefferson Parish Hurricane Protection levee?

General WILLIAMS. The first construction contract will be initiated this summer, and we will start on the western side of the project, along Highway 45.

Mrs. BOGGS. Has the Corps previously looked into the feasibility of extending the levee to the Lake Cataouatche area, and if so, what was the result?

General WILLIAMS. I am drawing a blank on that one, Mrs. Boggs. We will get back to the record on that one.

Mrs. BOGGS. Okay, thank you. I also have an additional question on that subject you can answer for the record.

[The information follows:]

ENLARGEMENT OF LAKE CATAOUATCHE LEVEE

In the early 1970's, the Corps evaluated the Lake Cataouatche area. It was also evaluated in the reconnaissance level effort under the Louisiana Coastal Area Hurricane Protection Study, which was completed in March 1988. Results of the study in the early 1970's concluded that the current level of protection provided by the Lake Cataouatche Levee was adequate if non-Federal interests maintained it to its design grade and cross-section. The 1988 study concluded that enlargement of Lake Cataouatche Levee was not econnomically feasible.

NEED FOR FURTHER STUDY OF LAKE CATAOUATCHE LEVEE

Mrs. BOGGS. Does there appear a need for further study of protection requirements?

General WILLIAMS. Yes, Ma'am, the West Jefferson Levee District and Jefferson Parish have passed resolutions requesting the Corps of Engineers to restudy the enalargement of the Lake Cataouatche Levee.

Mrs. BOGGS. I understand the Corps is currently evaluating the navigation structure and a pumping station as an alternative feature of the hurricane protection project.

Do you know the current status of the evaluation, and what steps are necessary to make this feature part of the plan?

General WILLIAMS. We have been working very closely looking at different alternatives, one being flood walls on both sides of the canal. That was not acceptable to the local interests. We worked with them, and have come up with a navigation structure in the canal and a pumping station. The district will be providing my office with the plans and studies very shortly.

Mrs. BOGGS. I have additional questions which I will submit for the record.

[The information follows:]

HURRICANE PROTECTION EAST OF HARVEY CANAL

Mrs. BOGGS. What is the status of planning for providing hurricane protection for the area East of the Harvey Canal?

General WILLIAMS. We are currently in the process of preparing a draft feasibility report that will be coordinated with the public in October 1990.

Mrs. BOGGS. When can we expect substantive recommendations,

General WILLIAMS. Tentative recommendations will be contained in our draft feasibility report. Our feasibility report is scheduled for completion in February 1991 and will contain our final recommendations.

RED RIVER WATERWAY—MISSISSIPPI RIVER TO SHREVEPORT, LOUISIANA

Mrs. BOGGS. Can you explain the sudden reduction in the funding level requested for the Red River Waterway project, and can you quantify the dollar loss in benefits to the Nation if Locks 4 and

5 are not built? What is an appropriate funding level should Congress decide to press forward for completion of this project?

General WILLIAMS. Let me see if I can take this in parts, here.

The initial contracts for Locks and Dams 4 and 5 will be awarded in June or July of 1990.

Mrs. BOGGS. But can you explain the sudden reduction in the funding level?

General WILLIAMS. The reduction has been directed by OMB, and the information that I have is that it is a low priority with the Administration. So, follow-on funds for Locks and Dams 4 and 5 construction are not in the Fiscal Year 1991 budget.

With regard to the appropriate funding level, we do have an approved capability for Fiscal Year 1991 of $87 million which will allow us to continue the construction of Locks and Dams 4 and 5. The current Fiscal Year 1991 budget is $39,147,000. I must point out that the Administration's review of this project has identified economic and/or policy concerns.

Mrs. BOGGS. I have an additional question which I will submit for the record.

[The information follows:]

DOLLARS LOST IN BENEFITS FOR LOCKS 4 AND 5

Mrs. BOGGS. Can you quantify the dollar loss in benefits to the nation if Locks 4 and 5 are not built?

General WILLIAMS. The loss would be approximately $76 million annually at the authorized project interest rate. This is about 70 percent of the total annual project benefits of which the major benefits are navigation, bank stabilization, and recreation.

ATCHAFALAYA BASIN FLOODWAY SYSTEM, LOUISIANA

Mrs. BOGGS. What is the status of the land acquisition in the Atchafalaya Basin Floodway System? Is the Corp's acquisition procedure comparable with the procedures of other agencies involved in the area, or is there need for modification?

General WILLIAMS. We have funds in both the 1990 and 1991 budgets to allow us to continue acquisition both in fee title and in easements. We have already purchased over 6,000 acres in fee and plan to acquire about 17,000 additional acres this year. We will also acquire about 44,000 of easements this year. About 60,000 acres of easements are scheduled to be acquired in Fiscal Year 1991.

One of the problems that we have experienced, which we are in the process of correcting, is the difference between the real estate contracts the Department of Interior has versus the Corps of Engineers.

The Department of Interior real estate contract has a clause in it that allows the seller to have first right of repurchasing if the Government desires not to maintain the land any longer. The Corps of Engineers contract does not have that clause, so it creates some problems when we are going on the willing seller basis. We are working that issue, and we hope to bring that to a successful conclusion—to bring our clause in line with the Department of Interior, so that we have a consistent Federal policy.

Mrs. BOGGS. And how much land acquisition is that holding up, and what is the dollar amount that is involved?

General **Williams**. It is about—I am told—$10 million to $11 million per year in acquisition, both in fee title and easements. This difference in policy delays the whole acquisition process.

Mrs. **Boggs**. I have some additional questions which I will submit for the record.

[The information follows:]

CONSERVATION FEATURES

Mrs. **Boggs**. The Corps and the State of Louisiana have been engaged in negotiations regarding various conservation features of this project. What is the status of these discussions, particularly those relating to the regulation of siiviculture in the Basin?

General **Williams**. Last July, the State of Louisiana requested that the Corps evaluate the cost of an environmental protection easement proposed by the State of Louisiana and the United States Fish and Wildlife Service. Based on this request, the Corps contracted two independent appraisers to analyze the cost of the Corps' currently approved easement, the State of Louisiana's proposed easement, and an easement giving the Government title to the timber. We forwarded the results of this analysis to the State of Louisiana in October 1989. Based on the appraisers' analysis, it would cost an additional $32 million to acquire the State of Louisiana's proposed easement or an additional $50 million to purchase title to timber. We are proceeding to acquire the Corps' approved easement.

Mrs. **Boggs**. What is the Corps' current legal mandate?

General **Williams**. The Corps is authorized to acquire the currently approved environmental protection easement.

Mrs. **Boggs**. What is the State's position?

General **Williams**. The State of Louisiana has informally told us that it may request Congress to direct the Corps to acquire the environmental easement and that Congress provide the Corps wiht the additional funding necessary for that acquisition.

LAKE PONTCHARTRAIN

Mrs. **Boggs**. Senator Johnson recently held hearings on the cleanup of Lake Pontchartrain, and of course you represented the Corps at those hearings.

Do you have any recommendations or observations on what can be done by the State or Federal Governments to facilitate the cleanup of the lake?

General **Williams**. There is an awful lot of interest in cleaning up Lake Pontchartrain, as you know.

One of the things that the Corps of Engineers currently has ongoing is the Mississippi-Louisiana Esturaine Area project which provides for a structure at Bonnet Carre', which will use the existing Bonnet Carre' floodway and provide some modifications which would allow us to divert fresh water from the Mississippi River to Lake Pontchartrain. That will help to some degree.

What you have in Lake Pontchartrain is several different problems, most of which are controlled, or can be controlled, by State effort. The lead needs to be by a State agency with appropriate support by Federal agencies, one of which should be the Corps of Engineers.

Mrs. **Boggs**. I have some additional questions about Lake Ponchartrain which I will submit for the record.

[The information follows:]

MISSISSIPPI RIVER WATER DIVERSION

Mrs. **Boggs**. What effect will diversion of Mississippi River water into Lake Pontchartrain have on water quality in the Lake?

General **Williams**. Although the primary benefit of the Mississipp-Louisiana Estuarine Area project is fish and wildlife enhancement, a secondary benefit is water quality. We believe that the impact of introducing Mississippi River water into the lake will, in the long run, have beneficial effects on the lake's water quality. During local droughts, the freshwater diversion would reduce lake salinities to more desirable levels and would offset the nutrient deficits that accompany below normal runoff from the drainage basin. It is estimated that oyster production would be increased by 7.5 million pounds annually. The project will also improve the harvest of blue crabs, white shrimp, menhaden, croaker, freshwater catfish, muskrats, nutria, alligators, and many other species. These are total project benefits and will occur primarily in the Lake Borqne-Chandeleur Islands area. Some aquatic species, such as brown shimp and speckled trout will be displaced gulfward due to reduced salinities. However, the total populations of these species should not be adversely impacted.

BONNET CARRE' DIVERSION STRUCTURE

Mrs. Boggs. I was interested in your review of both the Caernarvon structure and the initiation of work on the Davis Pond structure, and now you have mentioned Bonnet Carre'. I know that you are re-analyzing the design of the Bonnet Carre' diversion structure with an eye toward cost savings for construction of the project.

Could you elaborate on the purpose of this re-analysis?

General Williams. Initially the Bonnet Carre' diversion was to be on the outside of the existing Bonnet Carre' floodway, and it has been suggested that we should make the diversion structure inside the existing floodway, thus eliminating the need to obtain additional real estate outside. That made a lot of sense and saved about $1.5 million in relocation costs and $4.2 million on the cost of the structure. Current refinements on the design of the structure indicate that an additional $1 million savings will result from a proposed structure 90 feet shorter in length than previously anticipated.

And by moving it inside the floodway, we now have to look at the bridge structure that is in that particular area, to make sure that we have taken care of the erosion problems around the bridge foundation.

Mrs. Boggs. I am sorry that our big chairman, Mr. Whitten, has left, because, of course, the Office of Management and Budget has proposed that cost-sharing of this project be 75 percent Federal and 25 percent non-Federal, and the Mississippi portion of the project was estimated by them to be 5 percent of that 25 percent.

As you know, their State legislature has acted on that, and issued bonds and levied other taxes to make up that five percent of the Mississippi part of it.

Can you tell me how that formula was selected? Would the Administration's support another formula, do you think, one that recognizes the tremendous investment the State of Louisiana is making in wetlands protection at a time of severe budget constraints in our State?

General Williams. I will answer this in two parts. I will leave the change in policy to the Washington level, and let General Kelly address that, if he desires.

But specifically, the three diversion projects that we have ongoing with Louisiana right now—the Caernarvon under construction, the Davis Pond soon to start construction— both of those are being cost-shared by the State of Louisiana on a voluntary basis with 25 percent cost-sharing.

MISSISSIPPI RIVER COMMISSION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, and TN, Maintenance, Fiscal Year 1991

OBLIGATIONS

	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
Tensas Basin, AR & LA:				
Boeuf and Tensas Rivers	1,878,600	1,525,000	2,387,000	Weir repairs in FY 1989 and FY 1991.
Red River Backwater Area	2,278,800	1,346,000	1,917,000	Increased pump operations in FY 1989 and drainage structure repairs in FY 1991.
Yazoo Basin, MS				
Sardis Lake	4,704,200	3,413,000	3,212,000	Recreation facilities and repairs in FY 1989.
Arkabutla Lake	3,764,600	2,529,000	2,359,000	Resurface roads in FY 1989.
Enid Lake	4,796,300	4,202,000	2,845,000	Sanitary rehabilitation and resurface roads in FY 1989 and FY 1990.
Grenada Lake	4,347,200	4,446,000	3,579,000	Boat channel maintenance, road repairs, and recreation facilities repairs in FY 1989 and FY 1990.
Greenwood	1,541,500	525,000	558,000	Bank repairs in FY 1989.
Yazoo City	451,500	827,000	369,000	Replace gate lifts at the pumping plant in FY 1989 and FY 1990.
Main Stem	1,277,800	1,204,000	893,000	Structure repairs in FY 1989 and FY 1990.
Tributaries	985,700	1,062,000	1,020,000	
Whittington Auxiliary Channel	250,100	407,000	399,000	Weir repair in FY 1990 and FY 1991.
Big Sunflower River	97,800	83,000	474,000	Weir repairs in FY 1991.

29 JAN 1990

MISSISSIPPI RIVER COMMISSION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, and TN, Maintenance, Fiscal Year 1991

OBLIGATIONS

	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
Yazoo Backwater	316,800	410,000	424,000	Pumping plant maintenance in FY 1990 and FY 1991.
Old River, LA	5,141,600	4,296,000	6,715,000	Purchase of spare gate valve, painting stoplogs and construction of water well in FY 1989. Increased bank stabilization, dam maintenance and instrumentation on dam structures, and purchase of crane in FY 1991.
Atchafalaya Basin, LA	7,242,500	7,440,000	7,105,000	
Lower Red River, LA	25,800	130,000	63,000	Replace pumping plant equipment and repair of floodgate in FY 1990 and FY 1991.
Bayou Cocodrie & Tributaries	155,900	106,000	155,000	Variation in water control analysis and hydrologic studies.
Inspection of Completed Work, AR, IL, KY, LA, MS, MO & TN	1,055,300	1,007,000	1,082,000	Variation in inspections.
Other Project Maintained Periodically	0	25,000		
TOTAL MAINTENANCE	121,304,000	110,121,000	121,000,000	

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The way we are heading now with the Bonnet Carre' is to follow a similar type of cost sharing.

Mrs. **Boggs.** General Kelly, would you like to tell us if, by any chance, some other type of support formula could be devised?

General **Kelly.** I am General Pat Kelly, Director of Civil Works for the Corps of Engineers.

We have reviewed that. Basically, the Administration has used the prototype of the Caernarvon structure, which was 75-25, and so that is the model that they are using for Davis Pond and for Bonnet Carre'.

I might point out that knowing there were perhaps, some problems with the State of Louisiana coming up with their share, as with Mississippi, the Administration chose to fund the Davis Pond structure which has strong support from the Administration.

Mrs. **Boggs.** Thank you, General. I have an additional question on the Bonnet Carre' project which I will submit for the record.

[The information follows:]

Consideration of Bonnet Carre' for Mitigation of Other Projects

Mrs. **Boggs.** Would it be possible to consider a greater Federal share for this project as mitigation for other Corps projects, such as the Mississippi River Ship Channel, the Lake Pontchartrain Hurricane Protection Levee, the enlargement of the Gulf-Intracoastal Waterway, etc.?

General **Williams.** No, ma'am. Mitigation costs for other Corps projects are also cost shared. The non-Federal cost allocation is actually greater on some projects, such as Lake Pontchartrain, in which the local interests' share is 30 percent versus 25 percent for the Bonnet Carre' projects. On the Mississippi River Ship Channel project, 25 percent of the mitigation cost is borne by local interest. On the enlargement of the Gulf Intracoastal Waterway, cost sharing has not been identified, but may be 50 percent from Federal appropriations and 50 percent from the Inland Waterways Trust Fund.

WETLANDS POLICY

Mrs. **Boggs.** President Bush's task force on wetlands policy has been at work for about a year. What guidance have you received from the Administration in dealing with the serious problem of Louisiana's wetlands?

General **Williams.** At the division level we frequently receive guidance on wetlands policy from our Headquarters in both written and verbal form; however, if the guidance we have received originated with the task force, we are not aware of it. There are two things, however, that pertain to the Corps of Engineers in our regulatory program that has impact on the wetlands.

Over a year ago, the new manual which four Federal agencies put together helped to delineate the wetlands.

On February 7 of this year, we implemented the Memorandum of Agreement between the Corps of Engineers and the Environmental Protection Agency which goes on to clarify how we are going to use the guidelines in determining the type of mitigation and the level of mitigation in support of the overall goal of no net loss of wetlands.

Mrs. **Boggs.** Tell me about the manual. Has the public response been good to it? What has happened since the issuance of the manual?

General **Williams**. We have held many public meetings throughout our entire division area. As you would expect with any new program or manual or direction, initially we got a lot of questions, and we will continue to get questions, I am sure.

Part of it is an education process which we are in the process of doing, so we have had more inquiries. I would hope that as time goes on, those inquiries will taper off. I would have to say the response has been mixed. We have received adverse comments and concern from landowners and developmental and agricultural interests an favorable comments from environmental groups and waterfowl enthusiasts. But it has been very beneficial in getting the four agencies to come to some sort of agreement as to what is a wetland.

Mrs. **Boggs**. That is a major accomplishment.

I have an additional question which I will submit for the record.

[The information follows:]

Section 404 Memorandum of Agreement

Mrs. **Boggs**. The Corps and the Environmental Protection Agency recently implemented a Memorandum of Agreement on Section 404. How do you expect this to affect the Corps' wetlands responsibiities in Louisiana?

General **Williams**. We do not consider that the Memorandum of Agreement changes our responsibility for wetlands. It articulates the policy and procedure to be used in determining the type and level of mitigation necessary to demonstrate compliance with the Clean Water Act. While the Memorandum of Agreement is not, in itself, a no net loss policy, the objective of wetlands compensatory mitigation is to provide, at a minimum, one for one functional replacement, recognizing that this minimum requirement may not be appropriate and practicable, and thus may not be relevant in all cases.

LOUISIANA WETLANDS

STUDIES UNDERWAY

Mrs. **Boggs**. The Corps has several studies underway of the Louisiana wetlands. What is the current status of these studies? Have any concrete proposals begun to develop for the Louisiana Coastal Area and the Mississippi Delta studies? When can we expect to see substantive recommendations?

General **Williams**. There are several studies that we have going on, and two that come to mind. First, on the Louisiana Comprehensive Coastal Wetlands study, we have just finished a reconnaissance study that we have been doing in that particular area, and we are about to sign a cost sharing agreement with the State of Louisiana to continue on with the feasibility study.

Our New Orleans District will be the lead for the Federal agencies, pulling together an action plan of identifying what the problems are and who should be working on the problems.

We are looking at that as a very positive study that will help to identify the problems and identify what should be done.

The other study which will have significant impact on the wetlands of Louisiana is our Land Loss and Marsh Creation study. What we are looking at is 20 different parishes on the coastline that are affected by the tide overflow on the marshes.

What we have done on that particular study is that we have gone for an interim feasibility study on three parishes: St. Bernard, Jefferson and Plaquemines. The interim feasibility study that is soon to come to my office indicates that there are some positive benefits there, and there are some alternatives where you can, in fact, create additional marsh down there, either through the placement of our dredge material from our dredge projects, or opening up some diversion of Mississippi River water through uncontrolled structures or through passes in the area.

Mrs. Boggs. I have some additional questions which I will submit for the record.

[The information follows:]

Diversion of Mississippi River Flows Below New Orleans

Mrs. Boggs. One concept that has received some attention is to provide for major diversions of the flow of the Mississippi River below New Orleans. What is the status of this proposal?

General Williams. We conducted a reconnaissance study that addressed the feasibility of large-scale diversions on the order of 70 percent or more of the Mississippi River flow and sediments to estuarine areas for the purpose of building wetlands. Our conclusions were that such diversions are engineeringly feasible but are not economically feasible or socially desirable. The Louisiana Department of Natural Resources has concurred in our conclusion to terminate these studies.

Mrs. Boggs. What would its effect be?

General Williams. We considered several sites for large-scale diversions of the Mississippi River flow and sediment for the purpose of building wetland. The most cost-effective site was on the east bank of the Mississippi River below New Orleans, near Bohemia, Louisiana. A large-scale diversion at Bohemia would create an estimated 90,000 acres of wetland over a 50-year period. Such a diversion, however, would totally freshen the Breton Sound Basin and drastically reduce commercially important fisheries species such as shrimp, oyster, and menhaden. Commercial trapping in the area would be increased. The total cost of the plan is estimated at about $102 million, and maintenance dredging of the Mississippi River would increase by an estimated $10.6 million annually. The benefit to cost ratio is estimated at 0.05 to 1.

Sections 704, 907, 1135 and 1155 Authorities

Mrs. Boggs. The 1986 Omnibus Water Resources Act gave the Corps new authority to deal with enhancement of the environment in conjunction with authorized projects. Please cite examples of where the Corps is currently planning to use this authority.

General Williams. We are currently developing, in cooperation with the U.S. Fish and Wildlife Service, a list of environmentally-oriented projects that could be constructed under authorities contained in Sections 704, 906, 907, and 1135 of the Water Resources Development Act of 1986. This list will be prioritized to identify environmental enhancement projects that warrant further consideration for inclusion in our Fiscal Year 1992 budget request.

Funds in the amount of $5 million are included in the Fiscal Year 1991 budget for Section 1135. Final selection criteria for these projects have not yet been developed. Section 1135 of the Water Resources Development Act of 1986 authorizes the Secretary of the Army to review the operation of Corps water resources projects constructed before the date of the Act to determine the need for modifications of such projects for the purpose of improving the quality of the environment, and to carry out a demonstration program of such modifications that are feasible and consistent with authorized project purposes. The non-Federal share of the cost of any modifications carried out under this authority is 25 percent. The authorized appropriation is not to exceed $25,000,000. The Water Resources Development Act of 1988 provides for an extension of three years of the time limit for accomplishing projects under Section 1135. In 1989 the Lower Mississippi Valley Division submitted fifteen proposals to the Office of the Chief of Engineers for consideration for funding under Section 1135.

Section 1155 authorized the Corps of Engineers, in consultation with the Secretary of the Interior, the Secretary of Commerce, and appropriate state agencies, to develop and implement projects for that creation, protection, restoration, and enhancement of wetlands in conjunction with authorized projects for navigation and flood control in the Lower Mississippi Valley. No funds were ever appropriated for this section, and the authority expired in 1989.

Mrs. **Boggs**. Are there any instances where you have the capability to use authority under provisions of Sections 704, 907, 1135 and 1155 that is currently not funded?

General **Williams**. Funds in the amount of $5 million are included in the Fiscal Year 1991 budget for Section 1135. Final selection criteria for these projects have not yet been developed. In 1989 we submitted fifteen proposals to the Office of the Chief of Engineers for consideration for funding under Section 1135.

We are currently developing, in cooperation with the U.S. Fish and Wildlife Service, a list of environmentally-oriented projects that should be constructed under authorities contained in Sections 704, 906, 907, and 1135 of the Water Resources Development Act of 1986. This list will be prioritized to identify projects that warrant further consideration for inclusion in our Fiscal Year 1992 budget request.

As previously indicated, Section 1155 authority expired in 1989.

Mrs. **Boggs**. Please provide specifics about instances that might exist is Louisiana.

General **Williams**. There are currently four projects for marsh creation in Louisiana, all in the New Orleans District, that are being considered for funding under Section 1135.

The Atchafalaya River and Bayous Chene, Boeuf, and Black project would create approximately 50 acres of wetlands in Atchafalaya Bay, using material excavated for channel maintenance. Marsh created in this manner would then be maintained by selective placement of dredged material during each annual maintenance event. Costs would be about $120,000 annually for auxiliary pumps, additional dredge discharge pipe, and more frequent movement of the pipe to achieve desired effects.

The Calcasieu River and Pass project would place approximately 1.9 million cubic yards of material dredged from the channel in shallow open water within the Sabine National Wildlife Refuge to create about 150 acres of vegetated wetlands. Additional costs for pumps, pipe, and selective placement are $190,000.

The Houma Navigation Canal project would create about 70 acres of marsh in shallow open water areas adjacent to the land cut of the waterway. An additional $480,000 is needed for this operation.

The proposal for the Mississippi River, Baton Rouge to the Gulf of Mexico project would create a crevasse in the bank adjacent to the river to divert sediment-bearing fresh water to adjacent areas. This would help to restore the viability of the marsh, decrease the rate of loss of vegetated wetlands, and create about 90 acres of marsh in the first two years. The cost of this project would be $62,000.

QUEEN BESS ISLAND

Mrs. **Boggs**. Queen Bess Island, which is the nesting area for the Brown Pelican, could be significantly replenished and stabilized using spoil from regular maintenance dredging.

What is the status of that proposal?

General **Williams**. Hopefully we are coming to the point where we are going to be able to do something. We worked with the State last week, and the State has provided assurance that they will provide $100,000 towards the dredging costs of the project.

We have found a way within the Corps of Engineers, using Section 150 of the Water Resources Development Act of 1976, and we will start hopefully in this calendar year to put some of the dredge material from our Barataria Bay Waterway maintenance project over on Queen Bess Island. We still have some engineering and permits and such to sort out—especially with the oyster beds.

Mrs. **Boggs**. That is good news. I am sure everyone will be happy to hear that.

GRAND ISLE HURRICANE PROTECTION

You showed a very telling and very beautiful picture of the Grand Isle hurricane protection dune. What effect would erosion of this barrier island have on coastal Louisiana wetlands?

General **Williams**. The island provides a buffer zone, so if that is gone, then the hurricane would be hitting the mainland with full force. We cannot quantify the specific effect the erosion of Grand Isle would have on the coastal Louisiana wetlands, but we have estimated that if all barrier islands in the Barataria Basin were eroded away, a 10 percent increase in wetland loss would occur.

So it plays a very important role and a very positive role in reducing the impacts in the loss of wetlands along in that area.

Mrs. BOGGS. I have other questions, General, that I will submit for the record.

I also have questions from our colleague Bob Livingston, which I will submit for you to answer on the record, on the West Bank Hurricane Protection project, and particularly the Harvey Canal area of it, the Pearl River project in Slidell, the Lake Pontchartrain cleanup, the Mandeville Seawall project, and urban flood control.

I would be grateful if you could answer those for the record for Mr. Livingston.

General WILLIAMS. Yes, ma'am, we will do so.

[The information follows:]

QUESTIONS SUBMITTED BY CONGRESSWOMAN BOGGS

GRAND ISLE HURRICANE PROTECTION LEVEE

Mrs. BOGGS. What is the status of the Grand Isle Hurricane Protection Levee?

General WILLIAMS. Bids are scheduled to be opened tomorrow, 22 February 1990, for the dune repair and structure reinforcement of Grand Isle. The contract is scheduled for award in March 1990 and completion is scheduled for September 1991.

Mrs. BOGGS. Local interests have begun the construction of a rock jetty. When do you think enough evidence will be available to evaluate the efficacy of this feature?

General WILLIAMS. We need to experience a couple of years of normal wave action and an impact hurricane or two, before we can evaluate the effect of the rock jetty. In fact, we plan to monitor the sand dune for 5 years after construction and have included the monitoring of the rock jetty in our plans.

LAKE PONTCHARTRAIN HURRICANE PROTECTION

Mrs. BOGGS. What level of protection does the Lake Pontchartrain Hurricane Protection Levee currently afford to the residents of the City of New Orleans, particularly those living in the eastern portion of the City?

General WILLIAMS. Our best estimates of the current protection level, in the City of New Orleans, including the eastern portion, is for a hurricane with a frequency of occurrence of once in 75 years.

Mrs. BOGGS. What remains to be done?

General WILLIAMS. The remaining items of work to complete protection for New Orleans include work at all three outfall canals, Orleans, London Avenue, and 17th Street; floodwall cappings east of the Inner Harbor Navigation Canal; the Paris Road to South Point floodwall and capping; the South Point to Gulf Intracoastal Waterway levee enlargement recently awarded; and, some remaining work being performed by local interests at Bayou St. John and Orleans Marina floodwall.

SOUTHEAST LOUISIANA HURRICANE PREPAREDNESS STUDY

Mrs. BOGGS. What is the status of the Southeast Louisiana Hurricane Preparedness Study?

General WILLIAMS. Our draft report is scheduled for review in January 1991 and the final report will be completed in June 1991. The report will present information on hurricane surge hazards; the vulnerability of the population, public shelters, and medical and institutional facilities to the hurricane hazards; and, the emergency measures and evacuation clearance times for various hurricane threat scenarios.

The National Weather Service has revised their hurricane surge model and developed hurricane surges for the study area. Data collection on hurricane shelters and medical and institutional facilities necessary to assess their vulnerability is almost complete. A contract to develop behavioral data relative to hurricane evacuation is nearing completion and a contract for the transportation analysis to develop evacuation clearance times has been advertised.

OUACHITA AND BLACK RIVERS, ARKANSAS AND LOUISIANA

Mrs. BOGGS. What is the status of the Ouachita-Black River Project?

General WILLIAMS. Plans and specifications are complete for the remaining channel realignment work. However, the schedule for award of these construction contracts is indefinite due to lack of funds in the state of Louisiana for acquisition of construction rights of way. An economic reanalysis of project cost versus benefits is being prepared at the request of Congressman Huckaby of Louisiana. This reanalysis is scheduled to be completed in May 1990.

Mrs. BOGGS. What are the issues involved here?

General WILLIAMS. A segment of the public in both Louisiana and Arkansas oppose further channel improvements because of perceived environmental impacts. The environmental groups also believe that the upper navigation pools are better suited for recreation than for navigation. They question the economic benefits projected for navigation in the two upper pools. These environmental concerns along with a lack of funds by the State of Louisiana to purchase necessary rights of way provide the major issues concerning continuation of this project. As I indicated, Congressman Huckaby has asked that we confirm the economic projections of the project.

Mrs. BOGGS. How much funding has there been for mitigation of this project?

General WILLIAMS. Approximately $3,422,000 was expended on the Bayou D'Arbonne Refuge in Louisiana, and $15,537,000 on the Felsenthal Refuge in Arkansas.

Mrs. BOGGS. What will happen to this mitigation if the project is not completed?

General WILLIAMS. Both the Bayou D'Arbonne and Felsenthal refuges are fully acquired and in operation. This completes the mitigation plan. It is appropriate to note that Felsenthal Lock and Dam is operated to maintain appropriate water levels for management of the refuge as well as to maintain a navigable pool. At this time there are no plans to change this operation.

USE OF DREDGED MATERIALS

Mrs. BOGGS. The State of Louisiana has expressed strong support for greater utilization of materials dredged during ongoing navigation O&M activities for wetlands creation. It has pointed out that the New Orleans District annually dredges 60 million cubic yards of materials which could be used to create over 6,000 acres of marsh along the Louisiana coast.

What constraints exist to expanded utilization of this material for marsh creation?

General WILLIAMS. Our ongoing marsh creation activities occur primarily on contracts utilizing pipeline dredges. The use of hopper dredges for marsh creation is not feasible because the necessary direct pumpout would be cost prohibitive. Other constraints include limitations under current authorities such as Section 150 of the Water Resources Development Act of 1976, the physical characteristics of the material, the quality of the material with respect to pollutant contamination, acquisition of disposal easements, and coordination with environmental interests.

However, prior to routine maintenance, each project is reviewed to seek opportunities for marsh creation associated with the disposal of the dredged material. We have created approximately 3,000 acres of marsh through selective placement of dredged material during routine maintenance operations. We also coordinate site visits for representatives from Federal and State agencies and local interests prior to each maintenance event. These agencies and local interests provide input regarding disposal plans that will maximize marsh creation efforts. Six of the scheduled maintenance dredging contracts for Fiscal Year 1990 have marsh creation as the desired end result of the disposal operations.

Mrs.BOGGS. How could these constraints be reduced or eliminated?

General WILLIAMS. The constraints of prohibitive cost, proximity of wetlands to dredging locations, and the quality of material cannot be reduced or eliminated at this time; however, the limitations under current authorities could be relaxed.

Mrs. BOGGS. Is this a problem of funding, regulation or legal authority?

General WILLIAMS. There is a problem relative to authority, such as the $400,000 Federal limitation on each work site under Section 150 of the Water Resources Development Act of 1976.

Mrs. BOGGS. Please cite specific examples of how the Corps could increase utilization of dredged materials in its FY 1991 program planned for Louisiana.

General WILLIAMS. The New Orleans District will continue marsh creation efforts in four projects, Atchafalaya River and Bayous; Mississippi River, Baton Rouge to the Gulf; Mississippi River, Outlets at Venice; and, Mississippi River-Gulf Outlet. In addition to these projects, environmental studies have been completed to accomplish additional marsh creation during maintenance of the Houma Navigation Canal and Bayou Lafourche and Lafourche Jump Waterway projects. We anticipate more marsh creation utilizing dredged material from maintenance of existing navigation channels as opportunities are identified under authority of Section 150 of the Water Resources Development Act of 1976 and Section 1135 of the Water Resources Development Act of 1986.

MISSISSIPPI DELTA REGION, LOUISIANA - DAVIS POND

Mrs. BOGGS. The Davis Pond Freshwater Diversion project has been identified by the State of Louisiana as its top priority for funding from its Wetland Trust Fund. While the efforts the Corps has made to include funding for this project in this budget recommendation are gratifying, is there any possibility of further expediting the construction schedule for this feature?

General WILLIAMS. Ma'am, the General Design Memorandum is scheduled for approval in August 1990, with initiation of land acquisition scheduled for November 1990. At this time, we do not foresee any possibility to further expedite this project.

Mrs. BOGGS. Please provide current time lines for completion of the feature and any recommendations for expediting its construction.

General WILLIAMS. Our current schedule for the Davis Pond project includes approval of the General Design Memorandum in August 1990 and signing of the Local Cooperation Agreement and initiation of land acquisition by November 1990. Based on this schedule, construction would be initiated in April 1992 and completed in April 1995. It is not feasible, at this time, to further expedite this schedule.

NAVIGATION MAINTENANCE

Mrs. BOGGS. The State of Louisiana has expressed concerns about the need for greater efforts to isolate navigation channels which traverse coastal wetlands and waters from adjacent wetlands since these channels frequently are avenues for saltwater intrusion. Please describe the Corps efforts to stabilize banks of navigation channels traversing wetlands.

General WILLIAMS. The Corps is constructing extensive bank stabilization along the Head of Passes of the Mississippi River. This bank stabilization is a project feature and is authorized by Congress. The Corps does not have authority to perform bank stabilization on the remaining navigation projects. Funds could be made available for such work under authority of Section 1135 of the Water Resources Development Act of 1986.

Mrs. BOGGS. Are there additional steps that should be taken?

General WILLIAMS. Existing navigable projects could be modified to include provisions for bank stabilization features.

Mrs. BOGGS. Does the Corps need additional authority or additional funding to improve isolation of these channels?

General WILLIAMS. Mrs. Boggs, some bank stabilization work could be considered under Section 1135 of the Water Resources Development Act of 1986. Substantial amounts of additional bank stabilization work would require additional Congressional authorization.

LOUIŞIANA COMPREHENSIVE COASTAL WETLANDS STUDY

Mrs. BOGGS. I understand the Planning Guidance Memorandum for the Louisiana Comprehensive Coastal Wetlands Study has been returned to the Office of the Chief of Engineers for approval. What is the expected date for completion of review and approval?

General WILLIAMS. Mrs. Boggs, we expect the Planning Guidance Memorandum to be approved by the Office of the Chief of Engineers by the end of this week.

MAPPING OF THE CHENIER AREA

Mrs. BOGGS. The State of Louisiana has expressed an interest in securing assistance from the Corps to complete digitization of aerial imagery for the Chenier area of Southwest Louisiana. I understand the results of this project are needed for the Louisiana Comprehensive Coastal Wetlands Study and other ongoing efforts to plan programs to offset coastal wetland losses. Does the Corps have the authority to provide this assistance?

General WILLIAMS. Yes, ma'am. We are currently digitizing aerial imagery for the Chenier area of Southwest Louisiana under our Planning Assistance to States program, authorized by Section 22 of the River and Harbors Act of 1974, as amended.

Mrs. BOGGS. Are additional funds needed?

General WILLIAMS. Yes, ma'am. We estimate the cost of mapping the Chenier area to be $300,000. We have obligated $125,000 and an additional $175,000 will be needed to complete the work.

QUESTIONS SUBMITTED BY CONGRESSMAN LIVINGSTON

WEST BANK HURRICANE PROTECTION

Question. What is the latest status of the Westwego to Harvey Canal Hurricane Protection project?

Answer. The project received a construction new start for Fiscal Year 1990 and the first item of work, the Highway 45 levee, is scheduled to be awarded in July 1990. Based upon the engineering work accomplished thus far, the project is considered to be 2 percent complete.

Question. Is full funding capability requested in FY 1991?

Answer. Yes, sir. Our capability for Fiscal Year 1991 is $3,700,000 the same as our budget request for Fiscal Year 1991.

Question. What is the latest status of the East of the Harvey Canal Hurricane Protection project?

Answer. Authorization of an East of the Harvey Canal Hurricane Protection project would be based upon approval of a favorable recommendation in the feasibility report. The report is scheduled for completion in February 1991.

Question. When is the first draft report on this project due for release by the New Orleans District?

Answer. The draft report is scheduled to be released for public review in October 1990.

Question. Will this draft report address the feasibility of including the so-called Pump Station #3 (Drainage District #9/West Jefferson) in the overall East of the Harvey Canal Hurricane Protection project? If not, explain why.

Answer. No, it does not. In our efforts to expedite a plan to provide hurricane surge protection for the West Bank area, we delayed consideration of rainfall flooding. To have studied both hurricane flooding and rainfall flooding would have substantially delayed completion of our draft feasibility report on hurricane protection. We had intended to proceed with consideration of the pumping station as a separate study; however, we understand that Jefferson Parish officials are seeking a resolution to authorize a comprehensive study of flooding caused by heavy rainfalls. Such a comprehensive study would be an appropriate vehicle to study the pumping stations.

Question. Provide for the record the current timetable for completing (through the Secretarial level) the East of the Harvey Canal Hurricane Protection Project report.

Answer. Our current schedule is to have the draft feasibility report available for public review in October 1990 and the Division Engineer's Notice of Completion of the final feasibility report in February 1991. Schedules for remaining actions are for the Washington level review to be completed in October 1991, the Board of Engineers for Rivers and Harbors report action to be completed in November 1991, the Chief of Engineers' report to be completed in December 1991, and the Assistant Secretary of the Army to submit the report to Congress in February 1992.

Question. What are the current cost estimates (Federal & non-Federal) for this project?

Answer. The cost of the locally preferred plan is approximately $115 million. The Federal and non-Federal cost breakdown is unknown at the present time because we have not completed identification of the National Economic Development plan.

Question. As I understand, the Westwego to Harvey Canal project plan currently calls for a floodwall running approximately from the Westwego Pump Station, around Bayou Segnette (where it meets with the West Bank Expressway), south to tie in with the Bayou Segnette Pump Station, etc......

Has the Corps studied the feasibility of a "floodgate structure" design for these areas and Bayou Segnette, as opposed to the current floodwall plan, in order to accommodate local concerns and Corps permitted projects already approved in the area?

Answer. Yes, we studied the feasibility of constructing a floodgate in Bayou Segnette, but the floodgate was determined not to be economically justified.

Question. If so, when was this study completed and what were the conclusions?

Answer. The study was completed in January 1989 and concluded that construction of a floodgate across Bayou Segnette would cost about $3 million more than the current plan.

Question. Have floodgate designs similar to the recently agreed upon Harvey Canal floodgate (which at one time was deemed not to be feasible) been studied as possible alternatives for the floodwalls currently planned around Bayou Segnette?

Answer. The Harvey Canal floodgate was at one time deemed not to be economically feasible because it would have required new pumping stations to relieve internal drainage once the floodgate was closed. The new design which is economically feasible solves the internal drainage problem without the need to construct new pumping stations. The proposal for a floodgate structure in Bayou Segnette was not found to be economically feasible based upon the cost of the structure alone. In addition, about 1,300 feet of the floodwall near the Bayou Segnette Pumping Station is being eliminated with the proposed plan, thereby reducing the cost of the floodwall alternative further.

WEST BANK HURRICANE PROTECTION - LAKE CATAOUATCHE

Question. Last year I presented testimony to this Subcommittee identifying the need to fund a feasibility study for the Lake Cataouatche area and levee project to be included as part of the West Bank Hurricane Protection project. Because this issue had been raised by Parish officials just prior to my testimony (see Energy and Water Development Appropriations for FY 1990, Part 7, page 498) and because the Corps indicated at the time that this issue had been previously studied, funding in FY 1990 could not be provided.

When was this area (the area from Westwego to the St. Charles Parish line) or levee last studied as a possible part of the West Bank Hurricane Protection project?

Answer. Sir, the area from Westwego to the St. Charles Parish line was studied in the early 1970's. It was also addressed in the reconnaissance study of Louisiana Coastal Area -Hurricane Protection which was completed in March 1988.

Question. What type of study was conducted and what were its conclusions?

Answer. Sir, both studies were of reconnaissance scope, that is, preliminary investigations. It was concluded in the early 1970's that if the non-Federal levee was maintained to its design grade and cross-section, it would provide adequate protection. In the 1988 study, it was concluded that enlargement of this area was not economically feasible.

Question. Are there any existing past authorizations currently on the books for a hurricane levee in the Lake Cataouatche levee area of West Jefferson (the area from Westwego to the St. Charles Parish line)?

Answer. Yes, sir. The authorizations that exist are resolutions authorizing study of the West Bank area, and those under the Louisiana Coastal Area - Hurricane Protection study.

Question. Provide for the record any and all past authorizations or study history for this area.
Answer. Sir, the study authorizations for the West Bank are Senate and House Committees on Public Works Resolutions. The Resolutions by the Senate Committee on Public Works were adopted on November 11, 1965 and May 6, 1966. The Resolutions by the House Committee on Public Works were adopted on May 5, 1966 and October 5, 1966. The study resolutions for the Louisiana Coastal Area were adopted by the Senate Committee on Public Works on April 19, 1967 and by the House Committee on Public Works on October 19, 1967. The Lake Cataouatche Levee area was studied under the West Bank authority in the early 1970's. The area was again evaluated under the Louisiana Coastal Area study authority in 1988.

Question. Who built and maintains the current Lake Cataouatche levee?
Answer. Sir, the Lake Cataouatche levee was designed by the State of Louisiana, constructed by the Lafourche Basin Levee District and is currently maintained by the West Jefferson Levee District.

Question. Is this levee up to Corps standards? Provide any details if available.
Answer. Sir, this levee was designed by the State of Louisiana using state criteria and standards and does not meet current Corps standards. The levee only provides limited hurricane protection.

Question. It is my understanding that approximately 24,000 people reside and work in Avondale, Bridge City, Kennedy Heights, etc. and are not protected by a Corps standard levee. Is this accurate?
Answer. Yes, sir. The areas you mention are not protected by an authorized Corps project.

Question. What is the population of the area not currently covered under the present Westwego to Harvey Canal Hurricane Protection project?
Answer. Sir, approximately 67,000 people will be protected by the Westwego to Harvey Canal project. In the areas not covered by the Westwego to Harvey Canal, approximately 135,000 people reside in the area being studied East of Harvey Canal and approximately 24,000 reside in the areas of Avondale, Bridge City, and Kennedy Heights.

Question. If this area or the existing Lake Cataouatche levee area were approved as a Corps project, what right of way requirements, or problems, if any, would the Corps face?
Answer. Sir, the rights of way requirements would be

determined by the levee design based on the level of protection authorized. Until these areas have been studied to the point of making this determination, we are unable to say if rights of way would be a problem, or what other problems, if any, may arise.

Question. Is there currently enough right of way for a standard project hurricane levee along the existing Lake Cataouatche levee alignment?
Answer. We have not initiated a study to determine the rights of way requirements for the Lake Cataouatche levee alignment.

BAYOU SEGNETTE

Question. The Corps testified last year that because of environmental considerations dredging originally planned in Fiscal Year 1988 for Bayou Segnette would be delayed until September 1989. The Corps subsequently pushed the dredging schedule back to October 1989 and then to April of 1990. What is the reason for these latest delays?
Answer. These delays are due to difficulties in obtaining rights-of-entry for disposal areas from Jefferson Parish. Rights-of-entry is expected to be obtained by 30 March 1990.

Question. Will the Corps stick to the April schedule?
Answer. Award of the contract for the Bayou Segnette project north of the Lapalco Bridge is currently scheduled for July 1990. This schedule is based on our latest estimate for obtaining rights-of-entry by 30 March 1990 and the normal time constraints imposed by our procurement process.

Question. Do authorized depths still exist south of Lapalco Boulevard?
Answer. No, Sir. The Bayou Segnette project depth south of Lapalco Bridge is 6 feet mean low gulf. The existing controlling depth is 4 feet mean low gulf. We were planning to dredge these deficient areas; however, the National Park Service and other environmental groups opposed this dredging for fear that salt water intrusion would increase and destroy adjacent wetlands.

PEARL RIVER, SLIDELL:

Question. Provide the current status and Fiscal Year 1991 funding plans for the Pearl River, Slidell project.
Answer. Our current schedule is to submit the General Design Memorandum in August 1990. Fiscal Year 1991 funds will be used to prepare plans and specifications for the north levee and drainage structures, initiate the Feature Design Memorandum on the pumping plants, and initiate construction in September 1991.

Question. Is this project proceeding as quickly as possible?
Answer. Yes, the project is proceeding as quickly as possible.

Question. Is full capability funding provided for in the Fiscal Year 1991 request?
Answer. Yes, sir. The budget request for Fiscal Year 1991 of $730,000 is our full capability.

Question. Have any further delays occurred since the Corps' testimony last year? Can construction begin in FY 1991 and can the Corps still meet the completion schedule for 1994 as testified to last year?
Answer. The local sponsor requested that we include more specific designs in our General Design Memorandum to include navigable floodgates and more detailed levee designs that would be compatible with the development of the area. This has delayed the submission of the General Design Memorandum from October 1989 until August 1990. However, the added detailed levee design in the General Design Memorandum is expected to reduce the plans and specifications effort and we should be able to initiate construction in Fiscal Year 1991 with award of the north levee and drainage structures in September 1991. This will enable us to meet our completion schedule of Fiscal Year 1994.

Question. If not, provide details why and the funding that would be necessary in FY 1991 to meet the original 1994 completion date.
Answer. Funds in the amount of $730,000 are included in our Fiscal Year 1991 budget request and is the amount needed to meet the scheduled completion date of September 1994.

Question. What is the status of the Vicksburg District's investigations of alternatives for flood protection for Avery Estates? Provide details.
Answer. The General Design Memorandum studies performed to date indicate that flood protection for Avery Estates will probably not be recommended because of environmental and economic considerations. The local sponsor has been informed. Avery Estates is located in and adjacent to significant wetland areas. A levee can be located that would protect a large portion of the area but would involve construction in wetland areas. Addition of Avery Estates would require mitigation for these wetlands which has not been considered so far. The project designed thus far excludes Avery Estates and avoids significant marsh and wetland areas. We have also determined that adding this increment of levee to provide protection for Avery Estates is not economically feasible.

Question. Provide available details on the flood damage caused by recent and current Pearl River high water.
Answer. Continuing coordination with the Mississippi Emergency Management Agency indicates damages in the Pearl River Basin have primarily been confined to tributaries of the Pearl. Presently, stages on the Pearl River remain near flood stage with significant low-land flooding. Flooding from the Strong River in Simpson County, Mississippi has resulted in significant flood damages. Approximately 100 to 150 people have been displaced due

to flooding conditions. Approximately $1 to $2 million in damages have occurred to roads and bridges in Simpson County. Numerous schools have been closed due to damaged roads and bridges. No requests for Corps assistance have been received.

WEST PEARL RIVER NAVIGATION/DREDGING

Question. Explain the status and plans for the remainder of 1990 and for Fiscal Year 1991 for dredging the West Pearl.

Answer. Dredging was performed on the West Pearl River from 1 October 1989 to 17 December 1989 which provided navigation to Bogue Chitto at Mile 43. The reach from Mile 43 to the proposed Bogalusa Port site at Mile 52 remains to be dredged. Dredging was limited to this time period because of an environmental window associated with the nesting season of the endangered Ringed-Sawback Turtle. There is approximately $120,000 left in Fiscal Year 1990 for dredging of the West Pearl River Navigation project, which is not enough to send a dredge back to the project this fiscal year. However, money is not the only drawback at present. Placement of dredged material in the remaining area to be dredged from Pool's Bluff Sill to the new Bogalusa Port site is a serious environmental concern, will require upland disposal with new environmental documentation, and will require about one year to coordinate. We now have the 1 October to 15 February dredging window associated with the Ringed-Sawback Turtle lifted and propose to wait until the next optimum dredging time of April 1991 to complete the dredging. We are also investigating a plan that would allow gravel mining to keep the waterway open, which, if feasible, would minimize problems associated with disposal of dredged material.

Question. Provide the latest status and details on dredging for Pump Sough and other tributaries of the West Pearl directed by Congress in Public Law 101-101.

Answer. A contract will be awarded in June 1990 to dredge Pump Slough and other tributaries.

COASTAL AND WETLANDS EROSION

Question. Explain in detail the Corps' proposed Fiscal Year 1991 funding for coastal erosion.

Answer. In Fiscal Year 1991, we have a budget request of $171,000 for the Louisiana Coastal Area--Land Loss and Marsh Creation Study, and $563,000 for the Louisiana Coastal Area--Comprehensive Coastal Wetlands Study. The Federal funds would be matched by a like amount of non-Federal cost-sharing funds. In addition, we have a budget request of $250,000 for marsh creation in Southwest Pass, under Section 150 of the Water Resources Development Act of 1976, in the Mississippi River, Baton Rouge to the Gulf project, Operation and Maintenance, General appropriation. In the same appropriation, we have requested approval for funds in the amount of $55,000 to create marsh in the Atchafalaya River, Bayous Chene, Boeuf and Black project under the Section 150 authority.

Question. What is the exact status of the Mississippi-Louisiana Estuarine Area project?

Answer. The Mississippi-Louisiana Estuarine Area project is currently in the preconstruction engineering and design phase. The General Design Memorandum is scheduled for approval in September 1990. However, the submission is dependent upon the completion of a draft Local Cooperation Agreement. The State of Mississippi has furnished a letter of intent to cost share and fully supports the project, but the State of Louisiana is seeking a way to fund its portion. Negotiations on the Local Cooperation Agreement are continuing.

LAKE PONTCHARTRAIN

Question. What present authorities (statutory or administrative) does the Corps have to provide technical, financial or any assistance to local authorities or non-profit foundations for restoration projects for Lake Pontchartrain?

Answer. The Corps has no direct authority for restoration of Lake Pontchartrain. We have two authorized projects underway which will influence the Lake and its surrounding ecosystems, the Mississippi and Louisiana Estuarine Areas - Bonnet Carre Freshwater Diversion project and the Lake Pontchartrain and Vicinity Hurricane Protection project. The freshwater diversion project will enhance wildlife and fishery resources and preserve 10,500 acres of wetlands. The levee in the St. Charles Parish portion of the hurricane protection project is so aligned in order not to disturb 26,000 acres of wetlands.

We can, under the Planning Assistance to States Program, cooperate with State agencies in the preparation of plans for the development, utilization, and conservation of water and related land resources of drainage basins. Such assistance could include collecting, analyzing and packaging existing Corps information on the water quality in Lake Pontchartrain; conducting a study to determine what additional monitoring stations in Lake Pontchartrain are required to analyze water quality; conducting a study to identify sources of lake pollutants; predicting the development of chronic conditions; documenting acute conditions; and, suggesting remedial and/or preventative measures.

URBAN FLOOD CONTROL

Question. What legal authorities currently exist for the Corps to address urban flooding from heavy rainfalls or to provide protection against flooding due to heavy rainfall in developed areas or to evacuate flood waters from developed areas? Provide details.

Answer. Based on terms of the 1944 Flood Control Act granting authority for major drainage improvements, regulations evolved to define urban drainage minimum criteria as a drainage of 800 cfs (ten-year storm) and a drainage area of 1.5 square miles.

Question. Have "urban flood" control projects ever been performed in other Corps Districts or been authorized by Congress? Please provide details and a listing of such projects.
Answer. No. Authorizations have followed this policy unless specifically directed by Congress. The Lower Mississippi Valley Division has not, as far as can be determined, carried through with any urban flood control projects having a drainage area of less than 1.5 square miles or 800 cfs (10-year storm). However, we are in the process of planning the West Memphis and Vicinity project in Arkansas, which is being done under the direction of Congress.

MANDEVILLE, LOUISIANA

Question. The Corps at one time had several alternatives for a Mandeville Seawall Project to reduce shoreline erosion and provide some protection. What is the status of this project?
Answer. The schedule for construction of the Mandeville Seawall is indefinite, pending receipt of financial support from a local sponsor.

Question. What is the status of local participation for this project? Provide details.
Answer. We have not found a local sponsor willing to financially support the construction of the Mandeville Seawall.

Mrs. Boggs. Thank all of you so much, and thank you for your remarkable work. We could not exist without you.

General Williams. Thank you, Mrs. Boggs.

Mrs. Boggs. Thank you, Mr. Chairman, and other members of the committee, for being so indulgent to me.

Mr. Bevill. The Chair recognizes Mrs. Smith.

Mrs. Smith. Thank you very much, Mr. Chairman.

We do appreciate all that you do. You do a great job for us all across the country.

I have learned a great deal from listening to Mrs. Boggs' thoughtful questions and your knowledgeable answers.

We do appreciate your being here, and I have no questions this morning.

Mr. Bevill. The Chair recognizes Mr. Thomas.

Mr. Thomas. Thank you, Mr. Chairman.

WETLANDS POLICY

SECTION 404 MEMORANDUM OF AGREEMENT

General, I would like to go back a minute to the Memorandum of Agreement you signed with EPA.

There were some changes made at the last stages of this Memorandum of Agreement. Some thought it was somewhat of a softening of the agreement, the provisions in the agreement.

How would you characterize those last minute changes that came from the White House back to you? Were they constructive? Were they reasonable?

General Williams. I think they were reasonable. I do not think it is going to impact on the attitude that we have about what has to be done out there. The MOA is just defining the procedures. It did not set any policy.

Mr. Thomas. Well, let me talk with you for just a second, and I will use a case to make my point.

FORT STEWART COMPLEX

I was called down to Georgia to look at a piece of land last Thursday—a piece of land that, incidentally, is not up for private development, but rather the Army wants to use it to build Section 801 housing.

It is adjacent to the largest military base east of the Mississippi, the Fort Stewart complex, which is in my district.

When I was called down to look at it and was told that a representative of the Corps had been out and said that there could be a problem as far as permitting, and that it might be a wetland area, I expected to go and find some forested hardwood bottomland, which comprise much of the problem areas we have in my part of the State.

Quite frankly, when I went out and saw the piece of land, I thought it was a joke. What I saw was typical pine flatwoods that comprise, I would say, 90 percent of the property in my State.

The Corps' Engineer had identified some 72 types of wetland vegetation. Now, I did not get specifically from him whether these plants were typical only to wetland areas, or whether they were plants that could grow in an upland environment as well.

He also pointed out that there was a hardpan of soil there that was typical of some wetlands. He also pointed out that he looked at a place where, in the course of logging, a small depression had been dug out, and water was standing in it.

Well, I do not mean to make a joke of this, but you can kick a hole in the ground with your heel right now in South Georgia and it will fill up with water—much of it will, this time of year.

So I just want to let you know that I have very grave concerns about what is going on right now. When I looked on that piece of land, there was not one cypress tree growing on it—not one permanent type of wetlands vegetation. If you ran a slow fire through it, as we often do in woods control in the fall of the year down there as a timber practice, there would not have been any of the vegetation that was identified there to start with. You would have seen nothing but pine and some water oak and things typical of the pine flatwoods of South Georgia.

I just want to put you on notice that if this is what we are up against, you are going to stop everything in my part of the country, period. There will be no more building, there will be no more highways, there will be nothing.

In fact, that piece of land was an extension running out of the base that was actually higher than the rest of the land the entire military base is built on. And that is a piece of land that you are now calling into question.

Now, if this is a result of this MOA, I just want to make the statement here before this committee that we have got some very serious problems.

I am just as committed to preserving our wetlands—it has been a longstanding position of mine—as I think anyone is. But we have got to take a sensible and reasonable approach to identifying them, and I just think that we have got a long way to go there.

I want to let you know the problems that I am seeing in my part of the country. You might care to comment, General.

General WILLIAMS. Yes, I would like to comment.

INTERAGENCY WETLANDS MANUAL AND THE MEMORANDUM OF AGREEMENT

I do not know the specifics of the area that you are talking about, obviously, but I tried to follow what you are describing for me.

I would try to break the answer down into two parts. There are two things impacting on the situation that you are talking about. One is the Interagency Wetlands Manual, which defines whether or not an area is a wetland. That is one thing, the MOA is the other.

The MOA does not define the wetland, the MOA just clarifies the procedures in which you determine the mitigation, and you go through a set of procedures, the first being try to avoid and then try to minimize, and then try to compensate. And then it addresses the functional aspects of the wetland being considered, and then the value of it.

The MOA addresses procedures. The manual, I think, is probably the one that you need to look at first.

Mr. **Thomas**. Well, for some reason—and I was attributing it to that MOA—all of a sudden the country is replete with problems over wetlands, and it is not just in my district. I hear it every time I walk into a room.

Since you mentioned mitigation let me just make one other comment to you.

RECREATION OF WETLANDS

I went down to the Waterways Experiment Station last year, and while we were there, I visited and asked some questions about knowledge and technology in re-creation of wetlands.

We have allowed and permitted the draining of certain wetlands under exemptions that exist in the 404 permitting program where all that was done—plainly and simply—was a ditch was opened and the water was drained off of the land.

All that needs to be done to re-create the same type of wetland that was lost, and the kind that is often needed in developed areas, is to close the ditch. The soil has not been dug up. The vegetation is still there. It is the same wetland that was always there, just absent the water.

And yet we had another Corps representative stand up in a public hearing in my district last week and make the comment that we cannot re-create wetlands.

In my part of the country where there is a great repository—and there is across the South—of hardwood bottom lands that have been drained—you have got everything you need to re-create wetlands right there. It might not have 100-year-old vegetation on it, but you have got the conditions to re-create and allow the regeneration of this wetland.

This person said we cannot re-create wetlands, so is mitigation almost an impossible course to follow?

General **Williams**. No, not at all.

There are things that can be done. In fact, some of the studies and projects that I mentioned earlier, demonstrate wetlands can be created.

Mr. **Thomas**. I think that as far as delineating and identifying and putting values on our wetlands, any layman would know some are certainly more valuable than others.

MITIGATION OF WETLANDS

If there is a need to compromise some for a highly valuable economic development project, then it ought to follow suit that we have a workable, reasonable way of mitigating to take care of that.

But I just have to tell you, as I see the process right now, I do not think anyone in his right mind should attempt to go through that process. I like the idea of doing something in the form of mitigation banking by identifying in some areas some wetlands that can be created, getting the free enterprise system involved and allowing them to sell participation to people who need mitigation.

We need to get going on this business of re-creating some wetlands, and I think we can do it—not on a one for one acre basis. Compromised wetlands may require two or three or maybe four to one mitigation, since the created wetlands are younger and will have to evolve.

But I just wanted to share that with you—and I did not mean you personally, you just happened to be here today when I came in. This is very much on my mind. I am just very concerned about the practicality of what we have to work with out there. I do not see it working.

General **Williams**. Yes, sir. I can appreciate your frustration. It is a subject in our particular area that is on our minds on a daily basis. It is a very tough one to handle, and our people that are out in the field having to deal with the public have a really tough time on their hands dealing with this issue.

Mr. **Thomas**. Thank you, sir.

Thank you, Mr. Chairman.

Mr. **Bevill**. I was out in Arizona last Wednesday in the desert. Nothing but cactus plants out there, and they told me the Corps had classified that as wetlands. I could not believe it, but they were serious. So I think we do have a problem there.

The Chair recognizes Mr. Chapman.

Mr. **Chapman**. Thank you, Mr. Chairman.

It is not in Arizona, but there are parts of East Texas that I want to get a little wetter.

General, let me say welcome to Washington. I join my colleagues in thanking you for an excellent presentation.

RED RIVER WATERWAY—DAINGERFIELD REACH

REEVALUATION STUDY UPDATE

I, as you know, am interested keenly in the Red River Waterway, not only as it is constructed to Shreveport, but perhaps beyond. And I would like to ask, if I may, if you could give me just a brief update on the status of the Daingerfield Reach portion of that project—the reevaluation study that is underway.

Congress last year funded $750,000, as you know, and $100,000 the year before that. I would like to know how you are coming on that.

General **Williams**. As you know, Mr. Chapman, we have a reevaluation underway on that area. There is a keen interest in extending navigation in that particular stretch of the waterway.

We have been working very closely with the people in that area, and in Fiscal Year 1990, we are continuing the reevaluation.

The Fiscal Year 1991 budget does not have any funds to continue our effort in the reevaluation.

FY 1991 CAPABILITY

Mr. **Chapman**. Is there a capability for Fiscal Year 1991, and if so, what is it?

General **Williams**. There is no approved capability for Fiscal Year 1991 for the project.

Mr. **Chapman**. Now, I think that the Vicksburg District office sent up a capability to you. Can we get that information?

General **Williams**. We will be furnishing it when it is approved, if it is approved.

Mr. CHAPMAN. What is the unapproved capability, then, gentlemen?

General WILLIAMS. The unapproved capability, Mr. Chapman, is $1.2 million for Fiscal Year 1991.

Mr. CHAPMAN. I have got to learn to ask the right questions, General. I would ask you, if the question is not exactly right, if you would help me. I am new on the committee and am trying to figure out how to get the information I need. I would appreciate that so much.

Mr. BEVILL. You know, he says he is new, but he has got the biggest project in the United States.

FISCAL YEAR 1990 PROGRAM

Mr. CHAPMAN. Mr. Chairman, it certainly was not because I was here. It was certainly because of the help of you and Mr. Myers and the other members of the committee.

But we do appreciate that. We appreciate the support.

Is the Corps going to be able to utilize the $750,000 that is appropriated for this year?

General WILLIAMS. Yes, sir, we are.

Mr. CHAPMAN. I have some additional questions on the Daingerfield Reach which I will submit for the record.

[The information follows:]

Fiscal Year 1990 Expenditures

Mr. CHAPMAN. Last year, the Congress appropriated $750,000 for the Daingerfield Reach project for FY 1990. How much of this amount has been spent to date?

General WILLIAMS. Sir, $107,400 was expended through the end of January.

Contract Awards

Mr. CHAPMAN. Have any contracts been awarded for work on this project? If so, what are these contracts for? If not, when do you expect to award contracts for work on the project and for what purposes?

General WILLIAMS. Yes, sir. We have several contracts underway for topographic surveys, aerial photography, and mapping. Other contracts will be awarded as the studies progress. Possible areas for these contracts include development of environmental data, economical data, recreational needs, and regional economic impacts.

PROJECT MANAGEMENT

Mr. CHAPMAN. The Corps of Engineers—from the Assistant Secretary on down—has testified that they have implemented some cost streamlining measures that have impressed me—project managers being put in place, and other things that appear to not only make your operations more efficient, but more accountable as well.

Has there been a project manager assigned to this Daingerfield Reach portion of the Red River waterway?

General WILLIAMS. All of our projects have project managers assigned to them, yes.

PLAN OF ACTION

Mr. **Chapman**. A preliminary estimate for preconstruction planning, as well as a preliminary timeline for that project, has been adopted.

Do you know whether or not a final plan of action has been approved since that plan was proposed?

General **Williams**. No, the final plan has not been approved. The plan of action will be completed with the funds in Fiscal Year 1990. We will be pleased to provide a copy when it is completed.

ACCELERATION OF PROJECT SCHEDULE

Mr. **Chapman**. The preliminary plan indicates that the reevaluation report would not be completed until fiscal year 1993. In fact, the preconstruction planning would carry on until fiscal year 1997.

I am at a bit of a loss as to why it would take that long—assuming that we get past the feasibility studies, assuming that the Corps of Engineers finds in that information a project that it can support, and assuming further that the Congress wants to help do it.

What can we do to accelerate that timetable? It seems that from now until Fiscal Year 1997 is an awfully long time.

General **Williams**. The 1997 does sound unusually long to me. I do not have it at my fingertips, but I could provide a breakdown of all the details of what is going on, and we could provide that for the record for you. But we certainly will go back and look at the time frame that you are talking about, to make sure that we have condensed it as much as we can.

[The information follows:]

Major Work Required To Complete Preconstruction Planning

We believe that our current schedule for completing our preconstruction planning is in line with the size and complexity of the project. The major work following the reevaluation study consists of detail engineering and design of the locks, dams, channels, model studies for Locks and Dams and preparation of plans and specifications for one channel item. We will do everything possible to accelerate this effort.

Mr. **Chapman**. I would ask you, if you could, for the record, to target, say, Fiscal Year 1994 or 1995 and describe for the record what would have to happen if we wanted to shorten that timetable by two or three years. What would be required of the Corps on the one hand and the Congress on the other if we wanted to do that?

Obviously it could be done if the resources were provided to do it and capability were there. I do not want to ask you to climb Mt. Everest barefooted, but I think that something could be done to accelerate that process, and if you could furnish that for the record I would appreciate that.

General **Williams**. I understand your concern, and we will look into it and provide the information for the record.

Mr. **Chapman**. Thank you.

[The information follows:]

Requirements To Advance Completion To 1995

We have examined our current schedule and looked into the resource requirements that would allow us to complete preconstruction engineering and design in 1995. First we would expedite the reevaluation study by 9 months. Then we would need to make an exception to Corps procedure and initiate detail design immediately upon completion of the draft reevaluation report. This would require a significant increase in the commitment of manpower and financial resources above the current schedule. This could be done, but with the limited manpower available other programs and projects would be severely disrupted.

This project is extremely environmentally sensitive, and about $3.5 million would be expended for design before coordination of a final Environmental Impact Statement. This means that any design changes that result from review of the Environmental Impact Statement or final review of the Reformulation Report may negate the advantages of the early start. During the period from Fiscal Year 1991 through Fiscal Year 1995 an additional $2.5 million would need to be appropriated to accelerate the completion of the planning, engineering and design from Fiscal Year 1997 to Fiscal Year 1995.

Funds needed each year to expedite completion of planning and engineering are: Fiscal Year 1991 $1,900,000; Fiscal Year 1992 $1,400,000; Fiscal Year 1993 $2,300,000; Fiscal Year 1994 $2,400,000; and Fiscal Year 1995 $3,800,000.

Mr. **Chapman**. I have an additional question which I will submit for the record.

[The information follows:]

Funding Needed To Complete the Reevaluation Study

Mr. **Chapman**. How much funding would be necessary to complete the reevaluation?

General **Williams**. Sir, approximately $2.2 million is needed to complete the reevaluation.

POTENTIAL WATERWAY USERS

Mr. **Chapman**. The Corps of Engineers has completed, as I understand it, its attempts to locate potential users of this Daingerfield Reach portion of the waterway.

Do you have the information as to how many potential users the Corps solicited in that effort?

General **Williams**. Sir, I will provide that for the record for you.

Mr. **Chapman**. All right, sir. Thank you.

[The information follows:]

Number of Potential Users Solicited

The survey area included a market area 50 miles along either side of the waterway. Twenty towns were involved. Our survey analyzed 75 firms as potential users and information was solicited from 50 of these firms.

Mr. **Chapman**. And could you also provide the number that responded, and the number that responded favorably, and a breakdown of whom was contacted and what their responses were? To the extent that there is a confidentiality there, I understand you cannot provide the actual name of a firm or enterprise. But I would like to get some idea as to who was contacted and what percentage return you got from those contacts, and what kind of information was received from those. I would appreciate it if you could do that for the record as well.

General **Williams**. Yes, sir, we will. We will provide the information that we have.

[The information follows:]

Results of Contacts With Potential Waterway Users

The Vicksburg District contacted over 50 firms within the area of the proposed waterway. Firms contacted covered a wide range of activities from agricultural to commercial and industrial as well as military. There was a response from 68 percent of these firms. Approximately 50 percent of those contacted stated that they could or would use the waterway. These firms provided information on commodities moving into and out of the study area as well as information on type and location of port and transfer facility.

Mr. **Bevill**. The Chair recognizes Mr. Myers.

Mr. **Myers**. Thank you, Mr. Chairman. I apologize for being gone for a little while there. I will review the record.

Sorry I missed your excellent presentation, or at least part of it. Good to see you—y'all. Do I qualify to say y'all?

General **Williams**. Yes, sir.

Mr. **Chapman**. Mr. Chairman, I have some other questions, but in the interest of time, I will submit those for the record with the permission of the Chairman.

Mr. **Bevill**. I also have questions, as do other members, to be answered for the record.

[The information follows:]

QUESTIONS SUBMITTED BY CONGRESSMAN BEVILL

GENERAL INVESTIGATIONS PROGRAM

DARDEENE CREEK, MISSOURI

Mr. BEVILL. Please describe the potential nuclear waste contamination problem that will be examined as part of the Dardeene Creek, Missouri, study.

General WILLIAMS. The Weldon Springs Ordinance Depot is located partially within the Dardenne Creek watershed. The Department of Energy is actively cleaning up this Depot under the Superfund program. The Corps flood control study will recognize any runoff and/or infiltration contamination problems that may result from the waste site. All activities the Corps pursues in this matter will be coordinated with the Department of Energy, the State and local interested parties.

BAYOU LAFOURCHE AND LAFOURCHE JUMP WATERWAY, LOUISIANA

Mr. BEVILL. Is there anything you can tell the Committee at this point about the results of the Bayou LaFourche and LaFourche Jump Waterway, Louisiana, study?

General WILLIAMS. Yes, Sir. We have found that a channel 22 feet deep by 300 feet wide is economically justified. This is 10 feet deeper and 175 feet wider than the authorized channel and 2 feet deeper than the 20 foot channel dredged by the local sponsor, the Greater Lafourche Port Commission. Our draft report will be distributed for public review in October 1990 and the final report is scheduled for completion in April 1991.

LOWER PEARL RIVER BASIN FLOW DISTRIBUTION, MISSISSIPPI AND LOUISIANA

Mr. BEVILL. What is the status of the Lower Pearl River Basin Flow Distribution, Mississippi and Louisiana, study? Why have no funds been requested in FY 1991 to continue the study?

General WILLIAMS. A reconnaissance report was completed in November 1989 that recommended no further feasibility studies be conducted at this time. Therefore, Fiscal Year 1991 funds to conduct feasibility studies are not required.

RED RIVER BASIN, COMPREHENSIVE STUDY, ARKANSAS AND LOUISIANA

Mr. BEVILL. Why has the completion date for the Red River Basin Comprehensive study slipped almost two years?

General WILLIAMS. Funds were received in November 1988 to initiate the reconnaissance study of the Red River Basin, Arkansas and Louisiana. Due to the size and complexity of the basin, the completion date for both the reconnaissance report and the feasibility report has been extended.

WEST FRANKFORT AND VICINITY, ILLINOIS

Mr. BEVILL. What is the status of the West Frankfort and Vicinity, Illinois, study?

General WILLIAMS. The reconnaissance study was completed in June 1989. The notice of the study completion was mailed to all interested study participants in August 1989 explaining that there was no economically feasible solution to the flooding problem and thus no Federal interest in continuing the study.

AMITE RIVER AND TRIBUTARIES, LOUISIANA

Mr. BEVILL. Why has the estimated cost of the Amite River and Tributaries, Louisiana, feasibility increased $1,300,000 from the estimate provided last year?

General WILLIAMS. Sir, the State of Louisiana has requested that the Darlington Reservoir project be considered in the study. Originally the state was going to construct this portion of the project but is now requesting Federal participation. The increase in cost of the feasibility study reflects this expanded effort as well as additional engineering design, environmental and economic studies associated with the Comite River portion of the study.

LOUISIANA COASTAL AREA, LAND LOSS AND MARSH CREATION, LOUISIANA

Mr. BEVILL. Has the Louisiana Coastal Area Land Loss and Marsh Creation study identified any feasible projects for the creation and/or preservation of wetlands?

General WILLIAMS. Yes, Sir. The study has identified a plan for creating vegetated wetlands in three coastal area parishes, St. Bernard, Plaquemines, and Jefferson. This plan consists of ten independent structural alternatives from three general categories, creating vegetated wetlands using sediments dredged from waterway maintenance, creating vegetated wetlands with small crevasses in passes of the active Mississippi River delta, and creating vegetated wetlands with uncontrolled sediment diversions from the Mississippi River below the latitude of Venice, Louisiana.

This plan has the potential to create over 62,000 new gross acres and 25,000 new net acres of vegetated wetlands over a 50-year project life. We are continuing our evaluation of plans in the other coastal parishes.

LOUISIANA COASTAL AREA, MISSISSIPPI RIVER DELTA

Mr. BEVILL. What is the status of the Louisiana Coastal Area-Mississippi River Delta study?

General WILLIAMS. We have completed the reconnaissance study. Our findings were that large scale diversions of 70 percent or more of the Mississippi River flow and sediment are not economically feasible or socially desirable. Such diversions would build large wetland areas but drastically reduce the estuarine-dependent marine fisheries in the area to which flows are diverted. These fisheries include important commercial species such as shrimp, oysters, and menhaden. This would significantly impact the commercial fishing industry. We plan to complete our documentation of the study in March 1990.

VERMILION RIVER AND BAYOU TIGRE, LOUISIANA

Mr. BEVILL. What is the status of the Vermilion River and Bayou Tigre, Louisiana, study?

General WILLIAMS. We completed the reconnaissance study in January 1990. Our findings were that none of the plans of improvement investigated were feasible under Federal criteria. Accordingly, the study is currently inactive.

CUIVRE RIVER AREA AND VICINITY, MISSOURI

Mr. BEVILL. Does it appear likely that the Cuivre River Area, Missouri, reconnaissance study will find there is sufficient Federal interest to proceed to the feasibility phase?

General WILLIAMS. Preliminary analysis of the data currently available does not indicate a Federal interest for proceeding to the feasibility phase. A final determination will be made when all data has been analyzed and environmental opportunities are fully considered.

COMITE RIVER, LOUISIANA

Mr. BEVILL. In FY 1990, $400,000, the same as the budget request, was appropriated for preconstruction engineering and design of the Comite River project; however, you are only allocating $50,000. What is the cause of the delay in initiating this project?

General WILLIAMS. The delay in completing the feasibility report and Environmental Impact Statement for the Comite River Basin study resulted in delaying the initiation of the preconstruction engineering and design. Concerns on longevity and durability of uncontrolled gabion structures, induced flooding, bank cutting problems and mitigation required additional studies and a redesign before completing the study and initiating the preconstruction engineering and design.

Mr. BEVILL. Why has the estimated cost of preconstruction engineering and design for this project almost doubled since last year?

General WILLIAMS. The $1.8 million estimate reported last year was based on preliminary indications that the Comite and Amite River channel modification plan, which would involve only channel work, would be the tentatively selected plan. The final analysis in the draft feasibility report indicates that the tentatively selected plan is the Comite River Diversion Plan. This plan includes construction of a 12-mile diversion channel from the Comite River to the Mississippi River with associated control structures which will require considerably more engineering and design effort than the channel modification plan.

MALINE CREEK, MISSOURI

Mr. BEVILL. What is the status of Maline Creek, Missouri, preconstruction engineering and design effort?
General WILLIAMS. A reevaluation report on the project has been completed and approved. It reflects a project of much smaller scope. Work on the General Design Memorandum will be initiated in Fiscal Year 1990 with completion scheduled in Fiscal Year 1991. All preconstruction engineering and design effort is scheduled to be completed in Fiscal Year 1991.

Mr. BEVILL. Why have no funds been requested to continue this work in FY 1991?
General WILLIAMS. The reduced project scope reflected in the reevaluation report will require less effort for preconstruction engineering and design. Funds currently available are considered adequate for completion.

CONSTRUCTION, GENERAL PROGRAM

OUACHITA AND BLACK RIVERS, ARKANSAS AND LOUISIANA

Mr. BEVILL. Why have no funds been requested to continue the Ouachita and Black Rivers, Arkansas and Louisiana, project?
General WILLIAMS. State funds for acquisition of construction rights of way for the channel realignment work in Louisiana are not available to support award of a construction contract.

MELVIN PRICE LOCK AND DAM, ILLINOIS AND MISSOURI

Mr. BEVILL. Is traffic now passing through the Melvin Price Lock?
General WILLIAMS. Yes, Sir. The first commercial tow passed through the lock on 10 October 1989.

Mr. BEVILL. When will removal of the old Lock and Dam 26 be completed?
General WILLIAMS. Sir, removal of the old locks and dam is scheduled to be completed in late summer of 1991 with the exception of the intermediate lock wall. This item surrounds a pier of a state highway bridge that is not part of the navigation project but is to be relocated by the States of Illinois and Missouri in the near future. Removal of the intermediate lock wall will be scheduled after the state highway bridge has been relocated.

MISSISSIPPI RIVER-GULF OUTLET, LOUISIANA

Mr. BEVILL. What is the status of your efforts to establish a location for the new lock associated with the Mississippi River-Gulf Outlet project?
General WILLIAMS. The New Orleans District is scheduled to submit a draft evaluation report to my office in July 1990. Preliminary indications are that the plan will consist of a new lock at the Inner Harbor Navigation Canal site in New Orleans.

MISSISSIPPI RIVER SHIP CHANNEL, GULF TO BATON ROUGE, LOUISIANA

Mr. BEVILL. Is the underwater sill that you constructed in the summer of 1988 to prevent saltwater intrusion up the Mississippi River still there?

General WILLIAMS. No, sir, the flows in the river gradually washed the sill away as anticipated.

RED RIVER WATERWAY-MISSISSIPPI RIVER TO SHREVEPORT, LOUISIANA

Mr. BEVILL. Are you complying with the directions provided in the FY 1990 Energy and Water Development Appropriations Act for the Red River Waterway project?

General WILLIAMS. Yes. The Phase I contracts for Locks and Dams 4 and 5, as well as the three Pool 1 channel improvement items, will be awarded this Fiscal Year. A Real Estate Design Memorandum and Local Cooperation Agreement are being prepared to comply with direction to acquire up to 5000 acres at Stumpy Lake, but due to the time required for preparation and approval of these documents, acquisition will not begin until Fiscal Year 1991. The Kansas City Southern Railroad has been directed to redesign a portion of the Pineville Grading and Drainage Plans to avoid disruption to the Colfax Creosote Company.

Mr. BEVILL. The budget request does not contain funds to continue work on Locks 4 and 5 on the Red River Waterway. If funds are not added by the Congress, will there be termination costs associated with stopping ongoing contracts?

General WILLIAMS. There will be termination costs. It is not possible to precisely predict these costs; however, our best estimate is that an additional $6.0 million could be required if these contracts are terminated after expenditure of the budgeted $5.97 million. A large portion of these costs are associated with contractor expenses which would have been incurred at time of termination, but not yet presented to the Government for payment. Other significant costs would include the administrative and legal expenses of termination and contract settlement, construction field office and contractors' shut down costs, and other damages. Resumption of the construction at a later date would require modification of the plans and specifications to incorporate the previously completed work, readvertisement, and award of new contracts. Some refurbishment of the previously completed work would also be required. This reinitiation could add an additional $1.6 million in engineering design, supervision and inspection, and construction costs to the $6.0 million required for termination.

EAST ST. LOUIS, ILLINOIS

Mr. BEVILL. Please explain the $11,130,000 "sundry" item associated with the increased cost estimate for the East St. Louis, Illinois, project.

General WILLIAMS. Mr. Bevill, the $11,130,000 sundry item is the difference between the estimate prepared by the sponsor's architect-engineer and the Corps' preliminary estimate for the work to be performed. The items in both estimates are very nearly the same, varying only in scope. We are currently preparing a Corps report detailing the work and estimated cost. This report is scheduled for completion later this fiscal year.

ALTON TO GALE ORGANIZED LEVEE DISTRICTS, ILLINOIS AND MISSOURI

Mr. BEVILL. The justification material indicates that local interests intend to seek a waiver of cost sharing on the Alton to Gale Organized Levee Districts project. Has a decision been reached on the waiver of cost sharing?

General WILLIAMS. No, sir. A decision to cost share certain work in the Alton to Gale project was made several years ago and local interests were so informed. Local interests believe that all of the work should be done at full Federal costs. The local interests have not yet requested such a waiver and a decision has not been necessary.

STE. GENEVIEVE, MISSOURI

Mr. BEVILL. What is the status of the Ste. Genevieve, Missouri, project?

General WILLIAMS. The funds provided by Congress in Fiscal Year 1990 in the amount of $47,000 will be used for reevaluation of the feasibility report dated June 1984.

RED RIVER WATERWAY, SHREVEPORT, LOUISIANA TO INDEX, ARKANSAS

Mr. BEVILL. What is the status of the Red River Waterway, Shreveport, Louisiana, to Index, Arkansas, project?

General WILLIAMS. Reevaluation study results are being compiled with a draft report scheduled for completion in April 1990.

HARRISONVILLE AND IVY LANDING DRAINAGE AND LEVEE DISTRICT NO. 2, ILLINOIS

Mr. Bevill. What is the status of work on the Harrisonville and Ivy Landing Drainage and Levee District's drainage structure?

General WILLIAMS. Initial design and cost estimates are nearing completion and will be discussed with local interests at a meeting scheduled for late February 1990. When a specific plan is selected, a technical report will be prepared and a Local Cooperation Agreement will be executed prior to initiating construction in Fiscal Year 1990.

Mr. BEVILL. Are additional funds required to complete this work?

General WILLIAMS. Although cost estimates are not yet completed, it is not expected that additional Federal funds will be required.

OUACHITA RIVER LEVEES INCLUDING BAWCOMVILLE, LOUISIANA

Mr. BEVILL. Is work proceeding on the Ouachita River Levees, including Bawcomville Levee, project as directed in P.L. 101-101?

General WILLIAMS. Yes, sir, plans and specifications for the Bawcomville Levee are complete and award of a construction contract is scheduled for July 1990. The remaining levee work is unscheduled pending coordination and final agreement of supplemental assurances with the Tensas Basin Levee District to assure the repair or replacement of existing drainage structures through the existing levee.

RED RIVER EMERGENCY BANK PROTECTION, ARKANSAS AND LOUISIANA

Mr. BEVILL. How are the funds provided in the FY 1990 Energy and Water Development Appropriations Act for the Red River Emergency Bank Protection project being utilized?

General WILLIAMS. These funds are being utilized for the design and construction of the Slay Bend Revetment on the Red River in Arkansas. We expect to complete the design and award a construction contract for this revetment in August 1990.

OPERATIONS AND MAINTENANCE, GENERAL PROGRAM

MERMENTAU RIVER, LOUISIANA

Mr. BEVILL. Are you complying with the directions provided in House Report 101-96 for operation of Algiers Lock, Catfish Point control structure, and Schooner Bayou control structure?

General WILLIAMS. The House Report for Fiscal Year 1990 provided an additional $100,000 for operation of the Catfish Point and Schooner Bayou water control structures 24 hours per day in order to provide additional freshwater flows into the Grand and White Lakes area. The present mode of operation of 14 hours per day meets project requirements. Providing operation for 24 hours per day would require four additional employees at a cost of $200,000 per year and would not be in conformance with the approved Commercial Activities, A-76, Most Efficient Organization. A letter report recommending that the present mode of operation be retained will be forwarded to higher authority in February 1990. Further, the House Report directs the Secretary of the Army to operate the Algiers Lock so as to optimize the flow of freshwater into the Barataria Basin within the constraints imposed by river stages and navigation traffic. An additional $25,000 has been provided for this purpose. Passage of vessel traffic is first priority. We are and will continue to provide for the passage of freshwater flows through Algiers Lock, when possible.

MISSISSIPPI RIVER AND TRIBUTARIES
GENERAL INVESTIGATIONS PROGRAM

ST. FRANCIS, ARKANSAS AND MISSOURI, FISH AND WILDLIFE

Mr. BEVILL. Are you complying with guidance contained in the Conference Report accompanying the FY 1990 Energy and Water Development Appropriations Act relating to the St. Francis River, Arkansas and Missouri, Fish and Wildlife study?

General WILLIAMS. We are in compliance with the Act. The funds contained in the Act for the study will be used in Fiscal Year 1990 to initiate the reconnaissance study which will be completed with the funds requested for Fiscal Year 1991.

WHITEMAN'S CREEK, ARKANSAS

Mr. BEVILL. Why has the completion date for preconstruction engineering and design for the Whiteman's Creek project slipped one year?

General WILLIAMS. The Whiteman's Creek feasibility study was scheduled for completion in September 1989; however, additional time has been required to explore and analyze cost reduction measures for the project. As a result, preconstruction engineering and design has been delayed a year.

WEST MEMPHIS, ARKANSAS AND VICINITY

Mr. BEVILL. Will preconstruction engineering and design for the West Memphis, Arkansas, project be completed this fiscal year as scheduled?

General WILLIAMS. Yes, sir. We are currently working on the General Design Memorandum which will be completed for review in May 1990. We have initiated work on developing the Local Cooperation Agreement and also plan to have a draft of that document finished in May 1990. Development of plans and specifications has just begun, and they will be completed in September 1990, which will complete preconstruction engineering and design for the project.

HARRIS FORK CREEK, TENNESSEE AND KENTUCKY

Mr. BEVILL. Will preconstruction engineering and design for Harris Fork Creek, Tennessee, project be completed this fiscal year as scheduled?

General WILLIAMS. No, sir. Preconstruction engineering and design is continuing this fiscal year. Because of cost sharing difficulties with the portion of the project in Kentucky, we are determining if constructing only the Tennessee portion of the project is economically justified. If it is justified and is supported by a local sponsor, a supplement to the Phase II General Design Memorandum incorporating this change will be prepared this fiscal year. After the report is coordinated with Federal, state, and local agencies and firm commitments are made by a project sponsor, plans and specifications will be prepared for the first item of construction. This is scheduled for the third quarter of Fiscal Year 1991 and will complete preconstruction engineering and design.

MISSISSIPPI RIVER AND TRIBUTARIES - CONSTRUCTION AND DAM SAFETY ASSURANCE PROGRAM

MISSISSIPPI RIVER LEVEES

Mr. BEVILL. Why were $7,200,000 reprogrammed from the Mississippi River Levees project in FY 1990?

General WILLIAMS. The funds were reprogrammed from the project due to local interests' inability to furnish right-of-way in a timely manner for the Cache River Pumping Station, Harwood-Grand Lake Item 516-R, and Valewood Carlisle Items 497-L and 498-L; delay in award of the Gretna Phase II levee item due to complexity of design requiring the review of several construction alternatives; and, less than anticipated contractor earnings on several levee contracts.

HOLD AND SAVE HARMLESS PROVISIONS

Mr. BEVILL. Has the Corps recently imposed a new condition on levee boards that would require the levee boards to hold the Government harmless from damages caused by the Government's contractors?

General WILLIAMS. No, sir, we have not. Indemnity clauses have been statutorily mandated since at least the Flood Control Act of 1928. The Water Resources Development Act of 1986 reconfirms this and requires that local cost sharing agreements contain an indemnity clause to hold and save harmless the United States free from damages due to the construction, or operation, and maintenance of the project, except for damages due to the fault or negligence of the United States or its contractors.

CHANNEL IMPROVEMENT - SHELBY FOREST BOAT RAMP

Mr. BEVILL. Are you proceeding with the construction of a boat ramp into the Mississippi River at Shelby Forest in Shelby County, Tennessee, as directed by the Congress?

General WILLIAMS. Yes, sir. We are working closely with the State of Tennessee on this item. A site for the ramp has been selected, and design of the facility is essentially completed. Public coordination of the project is underway, and we now have a schedule for initiating construction in March 1990, providing that the necessary local cooperation agreement with the state can be executed by that time.

NONCONNAH CREEK, TENNESSEE AND MISSISSIPPI

Mr. BEVILL. Have the funds appropriated in FY 1989 for the Nonconnah Creek project for engineering and design of Johns Creek been transferred to the Soil Conservation Service?

General WILLIAMS. Yes, Sir. This transfer of funds was accomplished on 12 December 1989.

HELENA HARBOR, PHILLIPS COUNTY, ARKANSAS

Mr. BEVILL. Why has the completion date for Stage 1 of the Helena Harbor project slipped one year?

General WILLIAMS. Sir, the previous schedule was based on performing excavation and placing the embankment for the industrial area entirely by hydraulic dredging methods. During detailed design studies, it was discovered that embankment placed by this method would not be suitable for load-bearing development. As a result, the area of embankment was reduced, and the construction methodology was changed to provide haul-in of material to the industrial area. This method of construction is more seasonal and requires a longer period to complete than the hydraulic dredging method.

CACHE RIVER BASIN, ARKANSAS

Mr. BEVILL. What is the status of the reformulation study for the Cache Basin, Arkansas, project?

General WILLIAMS. Sir, reformulation studies are scheduled for completion in June 1990. All field studies, economic base studies, and hydrology and hydraulic analyses of existing conditions have been completed. Hydrology and hydraulic analyses of alternative plans of improvement, and basin-wide land use analysis are nearing completion. Benefit-cost analyses have been initiated.

EIGHT MILE CREEK, ARKANSAS

Mr. BEVILL. What is the status of the Eight Mile Creek, Arkansas, project?

General WILLIAMS. Sir, all preconstruction engineering and design studies leading up to the execution of the Local Cooperation Agreement have been completed. However, the City of Paragould, Arkansas, has not been able to arrange for the financing of the non-Federal portion of the cost. Fiscal Year 1990 funds are being used to investigate measures which would enhance the project's affordability to the local sponsor.

L'ANGUILLE RIVER, ARKANSAS

Mr. BEVILL. Why were no funds requested to continue the L'Anguille River, Arkansas, project?

General WILLIAMS. Sir, no funds were requested for Fiscal Year 1991 because the local sponsor has informed us that they will need to establish a taxing structure to generate funds to meet their cost-sharing requirements.

MISSISSIPPI AND LOUISIANA ESTUARINE AREAS, LOUISIANA AND MISSISSIPPI

Mr. BEVILL. What is the status of the Bonnet Carre fresh water diversion project which was funded as a new construction start in FY 1990?

General WILLIAMS. The Bonnet Carre freshwater diversion project is in the preconstruction engineering and design phase, with the General Design Memorandum scheduled for approval in September 1990. This is a delay of three months from the previous schedule. The delay is due to redesign on the length of the structure, which will reduce the cost, and receipt of a letter from the State of Louisiana requesting the project be put on hold, which stopped coordination on the relocations with the utility companies. The submission of the General Design Memorandum is dependent upon the completion of a draft Local Cooperation Agreement. The State of Mississippi has furnished a letter of intent to cost share and fully supports the project. The State of Louisiana is seeking a way to fund its portion. We are continuing negotiations on the Local Cooperation Agreement which is scheduled for March 1990.

QUESTIONS SUBMITTED BY CONGRESSMAN CHAPMAN

RED RIVER WATERWAY, SHREVEPORT TO DAINGERFIELD
TIME OF SOLICITATION OF POTENTIAL USERS

Mr. CHAPMAN. What was the period of time between soliciting potential users and completing the Corps efforts to get potential users?

General WILLIAMS. Approximately four months elapsed from the time a list of potential users was initially compiled and the surveys were completed. During this period, modifications were made to this initial list as additional information surfaced during the course of the study.

CORPS STAFF INVOLVEMENT WITH SURVEY

Mr. CHAPMAN. How many Corps staff were involved with conducting this survey?

General WILLIAMS. Two economists did the majority of the work on this effort, including the field work in actually conducting personal interviews with the potential users. In addition, one supervisory economist and the project manager provided related input. Lower Mississippi Valley Division personnel with responsibility for report review have also provided assistance, including review and approval of the questionnaire used in the survey.

LOCAL WATERWAY ASSOCIATION SURVEY

Mr. CHAPMAN. A local waterway association formed to support this project conducted their own survey to locate potential waterway users. This information was sent to the Vicksburg district office. Last year, you indicated for the record that the users identified in this report would be contacted and the commodities and transportation savings identified would be verified. Did the Corps seek to contact each of the potential users identified by the local survey?

General WILLIAMS. Yes, Sir. Potential users identified by the local survey represented a major portion of the initial list that was compiled.

Mr. CHAPMAN. Can you please explain why the tonnage identified by the local survey was double what the Corps has reported?

General WILLIAMS. The local survey reported approximately 11 million tons of potential movements. The Corps survey revealed approximately 6 million potential tons. Three factors account for the majority of the difference in the local survey and the Corps survey. The local survey reported potential movements in tons; however, the Corps survey found some of these movements to be in pounds, instead of tons. The Corps survey found that some of the movements reported by the local survey were a duplication of movements. Also, some movements reported in the local survey could not be verified in the Corps survey because potential users did not respond to the Corps survey.

POTENTIAL WATERWAY USERS

Mr. CHAPMAN. Over the past couple of years there has been much discussion about moving military units by waterways for both economic and safety reasons. Located in the East Texas area is Longhorn Army Ammunition plant which was the site chosen to destroy the Pershing II missiles and is the location for the future facility that produces HMX propellant --now only produced at one other location in the nation; and Red River Army Depot which is the Army's largest depot and the only one with major missions in all three areas of depot-level support -- maintenance, supply and ammunition. This facility is used to repair major weapons systems, supply units around the world with repair parts and to store, ship and maintain ammunition and missiles. Did the Corps contact these military facilities to solicit whether they would be a potential user of this waterway?

General WILLIAMS. Yes, sir. These facilities were contacted and data was obtained which was used in the analysis.

Mr. CHAPMAN. I am aware that on other waterways throughout our nation, such as the Arkansas River and the Tenn-Tombigbee, commodities such as sand, gravel, rock, etc. are a large portion of the total tonnage for the waterway. In your transportation rate analysis for Daingerfield Reach none of the above listed commodities were included as contributing to potential tonnage. Although East Texas is not noted for having a natural availability of these commodities, they are consumed in very large quantities throughout the area. Did the Corps try to locate potential users who consume these commodities?

General WILLIAMS. We did not identify any specific potential movements of these commodities during our initial survey; however, we are continuing our efforts to identify potential movements and to coordinate with the Shreveport to Daingerfield Waterway Association.

Mr. CHAPMAN. Although the Corps has completed their activity of soliciting potential users, if additional potential users wish to contact the Corps and provide information about their potential use of the waterway, will the Corps accept this information and factor it into the current rate analysis calculated by the Corps?

General WILLIAMS. Yes, sir. The Corps will incorporate any additional data on potential use of the waterway into the rate analysis.

QUESTIONS SUBMITTED BY CONGRESSMAN CONTE

IMPACTS OF FY 1990 SEQUESTRATION

Question. Please describe and quantify the impacts of sequestration on your Fiscal Year 1990 operating program.

Answer. In as much as the sequester was only 1.4 percent and due to our authority to reprogram funds to meet our critical needs, we expect the resultant impact from the slippage in the execution of the funded activities and projects to be minimal.

REDUCTION, ELIMINATION OR PREVENTION OF USE OF DRUGS

Question. Does the Division conduct any activities designed to reduce, eliminate or prevent the use of drugs?

Answer. The Lower Mississippi Valley Divison has an active Employee Assistance program covering wellness in general, to include professional counseling for drugs, alcohol and emotional problems.

Question. Please describe any such activities and quantify their costs and impacts.

Answer. The program covers all employees and their families and is operated out of our four District Headquarters in St. Louis, Memphis, Vicksburg and New Orleans. Part of the operations are performed by professional counselors under contract for employee self identified referral and/or supervisory identified referral. We prepare an annual report to the Corps Headquarters which is consolidated with other Army activities and transmitted to Office of Personnel Management. Drug abuse prevention is the subject of periodic conferences attended by professional staff. Periodic information is provided to the workforce during employee orientation sessions, newsletters, posters on bulletin boards and occasional seminars on drug prevention.

While we do not maintain separate figures on drug counseling costs, during Fiscal Year 1989 a total of 12 referral/counseling cases were reported of which 6 were new or reopened cases, 3 were self-identified and 3 were management initiated. Records indicate approximately 50 percent of the cases result in helping the employee while some are still too early to tell. Very few job related problems have been reported as being attributed to drugs. Based on a per capita cost for Fiscal Year 1989 for the total employee assistance program of $5.67, the estimated cost of referral and counseling for drug related cases is minimal. Of 175 counseling cases, only 12 were for drugs. Thus it could be estimated that approximately 7 percent of the $35,522 expended for employee assistance was related to drugs, or some $2,400.

MISSISSIPPI RIVER LEVEES

Question. Has the estimated total cost of raising the Mississippi River Levee system changed since last year?

Answer. Yes, the cost estimate of $1,310,000,000 has increased $30,000,000 from the estimate of $1,280,000,000 last presented to Congress in Fiscal Year 1990. This increase is for price level escalation on construction features and real estate of $41,932,000 and was partially offset by decreases of $6,017,000 due to revised floodwall alignment and reduction in design cross-sections and $5,915,000 based on contract awards and deletion of requirements for levee restoration items.

Question. Is the projected completion date of the Main Stem Levee system still the year 2010?

Answer. Yes, there has been no change in the completion date for the Main Stem Levee system.

MAJOR CONSTRUCTION CONTRACTS AWARDED IN FY 1990

Question. Please list the five largest construction contracts awarded for the Civil Works program in the Lower Mississippi Valley Division so far during Fiscal Year 1990. For each contract, please provide the name of the project, a brief statement of the type of work involved, and the date of the contract award, the total value of the contract, and the name and principal place of business of the contractor.

Answer. A tabulation containing the requested information is provided as follows:

PROJECT NAME: Melvin Price, Second Lock
DESCRIPTION: Construct Second Lock
AWARD DATE: 11 October 1989 AMOUNT: $167,152,783
CONTRACTOR NAME: Alberici-Eby, a Joint Venture
ADDRESS: St. Louis, Missouri

PROJECT NAME: Melvin Price Lock and Dam
DESCRIPTION: Dam Third Stage and Esplanade fill
AWARD DATE: 11 October 1989 AMOUNT: $39,208,677
CONTRACTOR NAME: Alberici-Eby, a Joint Venture
ADDRESS: St. Louis, Missouri

PROJECT NAME: Melvin Price Lock and Dam
DESCRIPTION: Remove existing structure and bridge
AWARD DATE: 31 October 1989 AMOUNT: $10,832,962
CONTRACTOR NAME: Luhr Brothers, Inc.
ADDRESS: Columbia, Illinois

PROJECT NAME: Channel Improvement
DESCRIPTION: Cast articulated concrete mattress
AWARD DATE: 22 December 1989 AMOUNT: $10,534,300
CONTRACTOR NAME: J. F. Barten Contracting Company
ADDRESS: Houston, Texas

PROJECT NAME: Red River Waterway, Mississippi River to Shreveport
DESCRIPTION: Construct trenchfill revetment, stonefill revetment and stone dike
AWARD DATE: 29 December 1989 AMOUNT: $4,711,128
CONTRACTOR NAME: Patton Tully Transportation Company
ADDRESS: Memphis, Tennessee

QUESTICNS SUBMITTED BY CONGRESSMAN JIMMY HAYES

CALCASIEU RIVER AND PASS, LOUISIANA

Question. In the Corps' regularly scheduled maintenance of the Calcasieu Ship Channel, the Corps must dredge various regions within the channel. Have you ever examined if the fill being disturbed is contaminated?

Answer. The dredged material and water quality were tested during the 1988 and 1989 maintenance cycle and no contamination was found.

Question. Where does the Corps put this potentially contaminated fill material?

Answer. No contamination in the material has been found. Offshore dredged material is dumped in deep water at pre-specified locations. Onshore dredged material is placed in diked or confined disposal areas.

Question. Should a further review of the estuarine system reveal the need for remediation or removal of contaminated sediments, how would such sediments be cleansed and where would they be put?

Answer. The "General Decisionmaking Framework for Management of Dredged Material" developed by the Waterways Experiment Station would be used to determine the environmentally preferable disposal alternative and the location of the disposal area.

Question. What would the Corps' role in this activity be?

Answer. The Corps of Engineers could participate in that portion of the cleanup activity that involves our navigation channel. The Corps has no authority for dredging outside the navigation channel.

Mr. **Bevill**. Yes, Mrs. Boggs?

Mrs. **Boggs**. Thank you, Mr. Chairman.

Maybe Mr. Myers is in and out, but he is an officer of the Lower Mississippi Valley Flood Control Association.

FISCAL YEAR 1991 CAPABILITIES

General, would you please submit to the Subcommittee a copy of the Division's approved Fiscal Year 1991 capabilities?

General **Williams**. Yes, ma'am, we will be glad to furnish them to the Committee.

INDUSTRIAL CANAL LOCK REPLACEMENT

Mrs. **Boggs**. What is the current status of the Industrial Canal Lock replacement? What do you expect the next steps in the planning of this project to be? Is the Corps working with local and neighborhood interests to bring them into the planning process?

General **Williams**. We have been working very closely with the people in that area, and the draft study on the replacement lock should be submitted to my office this summer.

Mrs. **Boggs**. Thank you very much.

Thank you, Mr. Chairman.

Mr. **Bevill**. General Williams, we want to certainly commend you for the great job you are doing out there. You have one of the most difficult areas of the country to deal with. As Chairman Whitten just said, 41 percent of the water goes through your division, and that causes a lot of problems.

You all do a great job, and we appreciate the good work you are doing.

General **Williams**. Thank you for your comment, sir.

WEDNESDAY, FEBRUARY 21, 1990.

NEW ENGLAND DIVISION

WITNESSES

COLONEL DANIEL M. WILSON, DIVISION ENGINEER

WILLIAM C. SCULLY, CHIEF, PROGRAMS MANAGEMENT OFFICE

ROBERT H. BYRNE, JR., ASSISTANT CHIEF, PROGRAMS MANAGEMENT OFFICE

Mr. BEVILL. The New England Division is next. Colonel Wilson, we are pleased to have you with us. You may proceed as you wish.

Colonel WILSON. Mr. Chairman and distinguished members of the committee, I am Colonel Dan Wilson, Division Engineer for the New England Division. It is my pleasure to appear again before your committee and to provide a status report on the Corps' civil works program in New England.

With me today are Mr. William Scully, Chief of Programs Management, and Mr. Robert Byrne, his assistant.

AREA OF RESPONSIBILITY

The New England Division's geographic area of civil works responsibility is the six-State New England region, exclusive of the western half of Vermont. We do, however, serve all of Vermont for the General Regulatory Program. The division headquarters is in Waltham, Massachusetts, just west of Boston.

This area of 66,000 square miles is home to more than 12 million people who enjoy a region and heritage closely allied to significant inland and coastal water resources.

COMPLETED PROJECTS

The Corps has played a major role in New England both in helping to benefit from the opportunities provided by water as well as in meeting the problems it presents in terms of coping with natural disasters.

Our more than 150 completed navigation projects have supported major deep draft port development, enabled commercial fishing to flourish, and provided recreational opportunities throughout the region's more than 6,000-mile coastline. The world's widest sea level canal, the Cape Cod Canal, importantly provides safe passage to more than 20,000 vessel transits each year.

Also meeting the needs of the region are 133 completed flood control and storm damage prevention projects. These include 35 dams and reservoirs, 5 hurricane protection projects and 93 local protection projects.

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CURRENT ACTIVITIES

Now I would like to briefly highlight some of this past year's activities and update the current year program, and then present the division's budget request for fiscal year 1991.

PORTSMOUTH HARBOR AND PISCATAQUA RIVER, NEW HAMPSHIRE

We awarded a $17 million contract in July to begin the improvement dredging of the deep draft channel in the Piscataqua River in Portsmouth Harbor on the New Hampshire-Maine State boundary. This project will widen the existing 35-foot deep channel in critical areas that are outlined in red on this slide. This current contract is for work in the larger area shown in the foreground. Work is presently about 50 percent complete.

A second, follow-on contract to complete the project will be awarded as soon as the State sponsor appropriates additional funds. I anticipate that contract will be awarded at the beginning of fiscal year 1992.

Although the project cost estimate has increased $7 million from the estimate presented a year ago, based on the bids received, this current estimate is $100,000, or only one- half of one percent, above the estimate cited at the time of authorization in 1986.

CONSTRUCTION NOT YET STARTED

Last year I reported on two other projects funded for construction that had at that time not been started. Regrettably they are still in that status, although progress, painfully slow as it may be, is being made.

TOWN BROOK, QUINCY AND BRAINTREE, MASSACHUSETTS

One of those projects is the local flood protection project for Town Brook in Quincy and Braintree, Massachusetts. Major features of this project, which will provide needed flood protection for Quincy, a heavily urbanized city just south of Boston, are channel improvements, a nearly one-mile long bypass tunnel some 190 feet below the city, and reconstruction of an existing dam.

REVERE BEACH, MASSACHUSETTS

The other project is the Revere Beach, Massachusetts shore protection project, which will provide storm damage protection to existing seawalls and backshore properties.

Both the Town Brook and Revere Beach projects have the same willing sponsor, the Metropolitan District Commission of Massachusetts, who has cost-sharing funds available. The unanticipated delays have been due to the extensive time and effort involved in coordinating with various State and local agencies to satisfy environmental concerns, and to obtain the various permits required before construction can begin.

Our best estimate at this time is for contract awards later in this calendar year. However, because of the extensive delays and uncertainties still present, we have not requested continuing construction funds for either project for the budget year.

COMPLETED FEASIBILITY STUDY FOR SAUGUS RIVER AND TRIBUTARIES, MASSACHUSETTS, STORM DAMAGE PREVENTION

Last month I issued a Public Notice signalling the completion of our feasibility studies for coastal flood protection for the eastern Massachusetts communities of Revere, Lynn, Malden and Saugus.

The feasibility report recommends implementation of an $88.5 million project that features a gated tidal barrier across the mouth of the Saugus River and 17,000 feet of floodwalls and dikes along the shore. These studies and the project now recommended are in response to the flooding havoc brought by the blizzard of February 1978, one of the most severe weather events ever to strike the eastern New England coast.

We are now initiating Preconstruction Engineering and Design, or PED, with funds appropriated for the current year.

COMPLETED RECONNAISSANCE STUDIES

We completed the reconnaissance phase of 7 other studies during the past year in response to Congressional resolutions. These include flood damage prevention investigations for the Ashuelot and Mascoma River basins in New Hampshire following flooding in 1984; flood damage prevention studies for the Penobscot, Kennebec, Androscoggin and Saco River basins in Maine as a result of 1987 flooding; and studies of serious shore erosion and navigation problems that have occurred at Chatham, Massachusetts, on the outer shore of Cape Cod, following the breach of the barrier beach in January, 1987.

None of these reconnaissance investigations recommend proceeding to the feasibility phase under specific Congressional appropriations. However, we do anticipate proceeding to cost-shared feasibility studies under our Continuing Authorities program for the four river basins in Maine and for possible navigation remedies at Chatham, Massachusetts.

CONNECTICUT RIVER STREAMBANK EROSION STUDY

At the direction of this committee, we have initiated this year a reconnaissance investigation of serious bank erosion along a 15 mile reach of the Connecticut River in Massachusetts, between Turners Falls and the New Hampshire border. Streambank erosion through this reach is occurring at a rate of 3 to 5 feet lost per year, with serious erosion having occurred during recent flood events.

The continuing loss of land along the river is of great concern to industry, property owners and environmentalists in this area. This initial effort will focus on identifying the nature and scope of the problem including potential impact on structures, identifying the causes of erosion, identifying possible remedial measures and their associated costs, and determining the feasibility and cost of further study.

BALL MOUNTAIN AND TOWNSHEND DAMS' FISH PASSAGE

We have also started, at Congressional request, an effort to identify the fish passage facilities required and to determine the most feasible and cost effective method to address the problem of fish passage at our Ball Mountain and Townshend flood control dams in Vermont. These two dams are on the West River and are a part of our coordinated system of flood control in the Connecticut River Basin.

Atlantic salmon were driven from the Connecticut River almost two centuries ago, but since 1965 there has been a concerted effort to restore salmon to the basin. Some type of facilities are needed at these dams to enable upstream migrant adult Atlantic salmon to pass to spawning areas as well as for the downstream passage of juvenile salmon.

FISCAL YEAR 1991 BUDGET REQUEST

I will now address our fiscal year 1991 budget request, which totals $27.8 million. A breakdown of the budget dollar shows 11.1 percent being requested for General Investigations, including PED; 88.6 percent for Operation and Maintenance; and less than one percent for Construction.

This total request is about $11 million less than our anticipated fiscal year 1990 allocations and the difference is essentially in the Construction account.

The funds requested for each appropriation category are summarized in this slide. I will briefly highlight each category.

GENERAL INVESTIGATIONS

The general investigations program request is $3.1 million, and provides for continuing effort on two surveys and preconstruction engineering and design for two projects.

SURVEYS

A total of $190,000 is requested for the continuation of the feasibility phase of two flood damage prevention studies. These are for the Spicket River in Massachusetts and New Hampshire, and the West Central Connecticut coastal area. These funds would be matched by the study sponsors.

PRECONSTRUCTION ENGINEERING AND DESIGN

The request of $2.9 million for preconstruction engineering and design will provide for continuing PED activity on two projects. One of these is Boston Harbor, where we propose to deepen three of the port's major ship channels.

The other is the Saugus River and Tributaries project that I discussed earlier, which will provide coastal flooding protection for the Revere, Massachusetts area.

CONSTRUCTION, GENERAL

The only construction request this year is $75,000 in continuing funds for the Portsmouth Harbor, New Hampshire project. These funds will allow for final design and coordination with local interests for the next construction contract scheduled to be awarded at the beginning of the follow-on year.

While the budget request under Construction General is small this year, I should point out that our activities within that appropriation under the Continuing Authorities Program remain substantial. We expect to award at least three construction projects worth about $5 million this year, and we anticipate another eight or so projects worth another $7 million to go to construction during fiscal year 1991.

OPERATION AND MAINTENACE

The Operation and Maintenance program request of $24.6 million provides funding for six navigation projects and 33 flood control projects.

A total of $11.8 million is requested for navigation including dredging of five harbors, operation and maintenance of the Cape Cod Canal, and condition surveys of some 40 projects.

For flood control, we are requesting $12.8 million for the operation and maintenance of 31 flood control reservoirs and two hurricane barriers, as well as the inspection of 76 completed local protection projects.

SUMMARY

In summary, I would reiterate a statement I made a year ago as an early impression of the New England Division program. While the civil works program dollars in New England are not large in comparison to other regions, they continue to produce important benefits for the taxpayers of the region.

Mr. Chairman, that concludes my status report. I would be pleased to answer your questions.

Mr. BEVILL. Thank you, Colonel, we will insert the justification material for the New England Division in the record at this point, witout objeciton.

[The justification follows:]

Justification of Estimate for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1991
SUMMARY NEW ENGLAND DIVISION

	FY 1990 Allocations $	FY 1991 Request $	Increase or Decrease $
General Investigations			
Survey	659,000	190,000	-469,000
Preconstruction Engineering and Design	660,000	2,900,000	+2,240,000
Construction, General			
Construction	12,902,000	75,000	-12,827,000
Operation and Maintenance, General			
Project Operation and Maintenance	24,600,000	24,611,000	+11,000
Total	38,821,000	27,776,000	-11,045,000

29 JAN 1990

1. SURVEYS - NEW: NONE.

2. SURVEYS - CONTINUING:

a. Navigation Studies: None.

b. Flood Damage Prevention Studies: The amount of $100,000 is requested for continuation of one study during Fiscal Year 1991. The tentative allocation is as follows:

Massachusetts

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Spicket River	635,000	250,000	35,000	100,000	250,000

The Spicket River is a tributary of the Merrimack River and is located in southeastern New Hampshire and northeastern Massachusetts. It has a drainage area of about 74 square miles. During April 1987, a combination of snowmelt and prolonged rainfall produced flood flows along the Spicket River in the range of a 100-year event. Floodwaters caused extensive property damage throughout the basin and forced hundreds to evacuate their homes and businesses. The most serious flooding was suffered by the heavily populated communities of Salem, New Hampshire and Lawrence and Methuen, Massachusetts. Damages incurred by these communities during the 1987 event were estimated to exceed $11 million. Reconnaissance studies were initiated during May 1989. These studies are addressing the water and related land resource needs of the basin, with emphasis on identifying flood problem areas and developing structural and nonstructural plans to reduce the potential of future flood losses.

Fiscal Year 1990 funds will be used to initiate feasibility phase studies of those alternatives identified during reconnaissance studies as having the greatest potential of leading to construction. The funds requested for Fiscal Year 1991 will be used to continue feasibility phase studies. The preliminary estimated cost of the feasibility phase is $770,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. The States of Massachusetts and New Hampshire are the potential sponsors and understand the cost sharing requirements for the feasibility phase. A summary of study cost sharing is as follows:

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: Spicket River (Cont'd)

Total Estimated Study Cost	$1,020,000
Reconnaissance Phase (Federal)	250,000
Feasibility Phase (Federal)	385,000
Feasibility Phase (Non-Federal)	385,000

The reconnaissance phase is scheduled for completion in May 1990. The feasibility study is scheduled for completion in August 1993.

Total Continuing Flood Damage Prevention Studies	635,000	250,000	35,000	100,000	250,000

c. Shoreline Protection Studies: None.

d. Special Studies: None.

e. Comprehensive Studies: The amount of $90,000 is requested for continuation of one study during Fiscal Year 1991. The tentative allocation is as follows:

Connecticut

Long Island Sound, CT and RI (Authorization Reports) — West Central Connecticut Coastal Flooding	500,000	300,000	64,000	90,000	46,000

The study area is a 30-mile stretch of Long Island Sound coastline in West Central Connecticut. This reach, located about 50 miles from New York City, includes the coastline of eight communities: Westport, Fairfield, Bridgeport, Stratford, Milford, West Haven, New Haven and East Haven. Flooding is caused along this reach by high tide levels which are induced by ocean storm surges and wind driven waves accompanying hurricanes and coastal storms. The State of Connecticut identified this reach, with over 15,000 residences and 1,200 commercial/industrial buildings, as the highest coastal flood hazard area in the State. Reconnaissance studies were initiated in December 1986. Officials from the 8 communities identified a total of 41 damage areas. Both structural and nonstructural alternatives were

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
e. Comprehensive Studies: West Central Connecticut Coastal Flooding (Cont'd)					

evaluated to determine their effectiveness in reducing potential flood losses in these areas. Nonstructural measures involving raising homes and construction of water proof cells to protect basement utilities were found to be justified in 5 damage areas. These areas are Saugatuck Shores and Compo Cove in Westport, Bayview Beach and Point Beach in Milford, and the entire coastal flood plain in Fairfield. The estimated cost of nonstructural plans for damage areas in Westport and Milford are within the Federal cost limit of Section 205 Authority and were recommended for further study under that Authority. Nonstructural measures for protection of over 1,100 coastal properties in Fairfield are estimated to cost $34 million and have been recommended for further study under this resolution.

Fiscal Year 1990 funds will be used to initiate feasibility phase studies of nonstructural measures for protection of coastal flood-prone property in Fairfield. Funds requested in Fiscal Year 1991 will be used to continue feasibility studies. The estimated cost of the feasibility phase is $400,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. Efforts are underway to finalize an agreement with the State of Connecticut and community of Fairfield for cost sharing of feasibility studies. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$700,000
Reconnaissance Phase (Federal)	300,000
Feasibility Phase (Federal)	200,000
Feasibility Phase (Non-Federal)	200,000

The reconnaissance phase was completed in June 1988. The feasibility study is scheduled for completion in June 1992.

Total Continuing Comprehensive Studies	500,000	300,000	64,000	90,000	46,000
f. Project Review Studies: None.					
TOTAL SURVEYS - CONTINUING	1,135,000	550,000	99,000	190,000	296,000

3. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - NEW: NONE.

4. PRECONSTRUCTION ENGINEERING AND
DESIGN ACTIVITIES (PED) - CONTINUING:

a. Navigation: The amount of $500,000 is requested for continuation of one PED activity during Fiscal Year 1991. The tentative allocation is as follows:

Massachusetts

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Boston Harbor	1,350,000	0	10,000	500,000	840,000

Boston Harbor is New England's largest port and serves as the principal distribution point for the commerce of Massachusetts, New Hampshire and Vermont. The inner harbor has been extensively developed for water transportation and is comprised of the Main Ship, Reserved, Chelsea River and Mystic River Channels. In 1987, waterborne commerce totaled almost 20 million tons, of which approximately 86 percent was liquid petroleum products. A feasibility report was completed on 13 May 1988. The recommended project, estimated to cost $26,200,000, involves: deepening the Mystic River and Reserved Channels from 35 to 40 feet and the Chelsea River Channel from 35 to 38 feet; along with widening and deepening to 40 feet the Inner Confluence Area which provides access to the Mystic and Chelsea River Channels; and widening at the entrance to the Reserved Channel. The proposed project would increase the navigational efficiency and safety of harbor operations and reduce tidal delays for larger vessels. The average annual benefits amount to $4,207,000, all for navigation. Benefits are from the latest approved evaluation contained in the Division Engineer's final report dated May 1988 and are at 1988 price levels. The benefit-cost ratio is 1.6 to 1.

The proposed project is not yet authorized, however, in accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must pay 25 percent of the costs allocated to deep draft navigation during construction, currently estimated at $5,985,000; reimburse an additional 10 percent of the costs allocated to deep draft navigation within a period of 30 years following completion of construction (partially offset by a credit allowed for the value of lands, easements, rights-of-way, relocations and dredged material disposal areas), currently estimated at $1,734,000; relocate utilities necessary for construction of the project, currently estimated at $660,000; and deepen berthing areas at the terminals of project beneficiaries, currently estimated at $1,600,000. The Massachusetts Port Authority is the local sponsor for the project.

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Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

a. Navigation: Boston Harbor (Cont'd)

Fiscal Year 1990 funds will be used to initiate Preconstruction Engineering and Design (PED) activities. Fiscal Year 1991 funds will be used to continue PED activities. PED efforts are scheduled for completion in September 1993.

Total PED Navigation	1,350,000	0	10,000	500,000	840,000

b. Flood Control: The amount of $2,400,000 is requested for continuation of one PED activity during Fiscal Year 1991. The tentative allocation is as follows:

Massachusetts

Saugus River & Tributaries	6,700,000	0	500,000	2,400,000	3,800,000

The communities of Revere, Saugus, Malden and Lynn are located along the Massachusetts coastline just north of Boston. Coastal properties within these communities have continually suffered severe tidal flooding, with the worst of record having occurred during February 1978. This storm flooded streets and buildings with up to seven feet of water and forced the evacuation of over 4,000 residents. A recurrence of the 1978 storm under existing conditions would cause over $100 million in damages to nearly 3,100 coastal properties in these four communities. An Issue Resolution Conference was held in October 1988 with Federal, State and local interests to discuss study findings in detail. Federal participants included representatives from the Assistant Secretary of the Army's Office and the Board of Engineers for Rivers and Harbors. The conference helped to identify remaining issues that needed to be resolved prior to completion of the Division Engineer's final report. The final report was completed in mid-December 1989 and the Division Engineer's Public Notice will be issued in early January 1990. The recommended project, estimated to cost $88.5 million at 1989 price levels, involves the construction of tidal floodgates across the mouth of the Saugus River and construction of a combination of dikes, walls, stone revetments, beaches and sand dunes along the shorefront of Lynn and Revere. This project would protect nearly 5,000 coastal properties within Revere, Saugus, Malden and Lynn against more severe tidal flooding than the 1978 storm. Protected properties include the General Electric River Works Complex which produces steam turbines and jet engines for the Department of Defense. The project would also help to preserve, through acquisition of real estate interest, 1,650 acres of salt water estuary for floodwater storage. The average annual benefits amount to $10,541,000 for storm damage reduction and $415,000 for joint-use recreation benefits. Benefits are from the latest available evaluation contained in the Division Engineer's final report and are at 1988 price levels. The benefit-cost ratio is 1.3 to 1.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Control: Saugus River & Tributaries (Cont'd)

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must provide all lands, easements and rights-of-way necessary for project construction, currently estimated at $9,200,000; pay approximately 24.4 percent of the first costs allocated to hurricane and storm damage reduction, currently estimated at $21,355,000, to bring the total non-Federal share of hurricane and storm damage reduction costs to 35 percent; pay one-half of the separable costs allocated to recreation, currently estimated at $600,000; and bear all costs of operation, maintenance, and replacement of project facilities, currently estimated at $230,000 annually. The Metropolitan District Commission (MDC), an agency of the Commonwealth of Massachusetts, is the lead sponsor for the project.

Fiscal Year 1990 funds will be used to initiate Preconstruction Engineering and Design (PED) activities. Fiscal Year 1991 funds will be used to continue PED activities. PED efforts are scheduled for completion in August 1993.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Total PED Flood Control	6,700,000	0	500,000	2,400,000	3,800,000
c. Shoreline Protection: None.					
d. Multiple Purpose Power: None.					
TOTAL PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - CONTINUING	8,050,000	0	510,000	2,900,000	4,640,000
GRAND TOTAL - SURVEYS AND PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES	9,185,000	550,000	609,000	3,090,000	4,936,000

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APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Portsmouth Harbor and Piscataqua River, New Hampshire and Maine (Continuing)

LOCATION: Portsmouth Harbor, formed by the mouth of the Piscataqua River along the Maine-New Hampshire boundary, is located about 45 miles northeast of Boston.

DESCRIPTION: The project involves widening the northern limit of the existing 35-foot channel adjacent to Badgers Island by 100 feet, widening the existing 35-foot channel between the two vertical lift bridges from 600 to 1,000 feet, and widening the southern limit of the existing 35-foot channel at Goat Island from 400 to 550 feet. All work is scheduled.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio is 9.2 to 1 at 8 5/8 percent.

TOTAL BENEFIT-COST RATIO: The total benefit-cost ratio is 1.2 to 1 at 8 5/8 percent.

INITIAL BENEFIT-COST RATIO: The benefit-cost ratio for the fiscal year for which Congress appropriated initial construction funds (FY 1987) was 1.5 to 1 at 8 5/8 percent. The benefit-cost ratio was based on the project functioning independently.

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in January 1986 at October 1985 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Appropriation Requirement (C of E)	$16,725,000
Estimated Appropriation Requirement (U.S.C.G.)	20,000
Estimated Total Appropriation Requirement	16,745,000
Future Non-Federal Reimbursement	2,230,000
Estimated Federal Cost (Ultimate)	14,515,000

STATUS (1 Jan 90)	PERCENT COMPLETE	COMPLETION SCHEDULE
Channel Dredging (Area 1)	45	Jul 1990
Channel Dredging (Area 3)	0	Mar 1992
Entire Project	38	Mar 1992

PHYSICAL DATA

Widen existing 35-foot deep channel from 600 feet to 1,000 feet between two vertical lift bridges to create an emergency maneuvering area.

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SUMMARIZED FINANCIAL DATA (Cont'd)

			Accumulated % of Est. Fed (CE) Cost
Estimated Non-Federal Cost		7,805,000	
Cash Contribution	$5,575,000		
Reimbursements: Comml Navigation	2,230,000		
Total Estimated Project Cost		$22,320,000	
Allocations to 30 September 1989		$ 4,700,000	
Conference Allowance for FY 1990		4,425,000	
Allocation for FY 1990		9,355,000 1/	
Allocations through FY 1990		14,055,000	84
Allocation Requested for FY 1991		75,000	85
Scheduled Balance to Complete After FY 1991		2,595,000	
Unscheduled Balance to Complete After FY 1991		0	

PHYSICAL DATA (Cont'd)

Widen northern limit of existing 35-foot deep channel adjacent to Badgers Island by 100 feet.

Widen southern limit of existing 35-foot deep channel at Goat Island from 400 to 550 feet.

1/ Reflects $427,000 reduction assigned as savings and slippage, $46,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $5,403,000 reprogrammed to the project.

JUSTIFICATION: Portsmouth Harbor is the sole deep draft harbor located in the State of New Hampshire. The total waterborne commerce of the harbor in 1987 was 3.5 million tons. Harbor users expect Portsmouth Harbor to continue to play a significant role in the economy of the region by handling an increasing amount of commerce. The harbor also serves as the home of the Portsmouth Naval Shipyard and the avenue of fuel deliveries to Pease Air Force Base. Hazardous conditions in the river make it difficult for local users to realize the full potential of the existing navigation project. In an unsafe practice, vessels with lengths of up to 700 feet now use the channel. The existing 35-foot deep, 400-foot wide Federal channel that is characterized by sharp bends, swift current, narrow lift bridges, inadequate turning basins and a tortuous natural channel limits safe navigation by deep-draft vessels even during periods of slack water. The direct impact to users is that the harbor will be unable to remain competitive and that they cannot realize savings in waterborne transportation costs associated with larger size ships without project modification. Of major concern is the safety hazard for ships using the harbor. With petroleum representing over 60 percent of the marine commerce in the port, an accident involving a petroleum carrier could result in an oil spill with catastrophic environmental and economic consequences. The proposed improvement of widening the existing channel in two areas would address the two major issues facing Portsmouth Harbor: namely the need to accommodate a greater number of the large ships required to realize waterborne transportation savings; and the need to improve the safety of deep-draft navigation in the harbor. The average annual benefits, all commercial navigation, are estimated at $2,532,700 at 1 October 1985 prices.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Planning, Engineering and Design	$ 75,000
Total	$ 75,000

COMPLETED OR REMAINING MODIFICATIONS: Work completed consists of a 35-foot channel, 400 feet wide with additional width at the bends at Henderson Point, Gangway Rock, Badger's Island, the Maine-New Hampshire Interstate Bridge and Boiling Rock, from deep water in Portsmouth Harbor to a point about 1,700 feet above the Sprague dock in Newington; a 950-foot turning basin above Boiling Rock and an 850-foot turning basin at the head of the project; both at 35 feet; a 6-foot channel, 100 feet wide from Little Harbor through the Rye-New Castle drawbridge and then northerly between the mainland and Leach's Island to deep water near Shapleigh Island; and a 6-foot channel, 75 feet wide up Sagamore Creek with an anchorage strip of the same depth, 75 feet wide and totaling 3 acres, in Sagamore Creek. The existing project was completed in 1971 at a total cost of $5,384,043. There are no uncompleted modifications.

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation and Maintenance Costs
Pay 25 percent of the costs allocated to deep-draft navigation during construction.	$5,575,000	
Reimburse an additional 10 percent of the costs allocated to deep-draft navigation within a period of 30 years following completion of construction offset by a credit allowed for the value of lands, easements, rights-of-way, relocations and dredged material disposal areas.	2,230,000	
Total Non-Federal Costs	$7,805,000	

The non-Federal sponsor has agreed to pay the initial 25 percent of project costs concurrent with project construction and to reimburse the additional 10 percent within the 30-year period following completion of construction.

STATUS OF LOCAL COOPERATION: The New Hampshire Port Authority is the non-Federal sponsor of the project. The Local Cooperation Agreement (LCA) and financial plan have been approved by the ASA(CW). The LCA was executed on 4 February 1988. The New Hampshire State Legislature included funds in their FY 1988-1989 capital budget, signed by the Governor on 27 May 1987. These funds, available 1 July 1987, will satisfy the non-Federal funding requirements for the first contract. The current non-Federal cost estimate of $7,805,000 is an increase of $2,555,000 from the non-Federal estimate of $5,250,000 noted in the LCA. This increase is $1,242,000 over the cost limit terms of the LCA. The non-Federal sponsor has indicated that it is financially capable and willing to contribute the increased non-Federal share. The sponsor has gotten state legislature appropriation language changed to indicate funds appropriated to date are for the initial contract and has provided assurance that it supports total project completion and will seek additional funds required in next legislature session. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $16,725,000 is an increase of $5,250,000 from the latest estimate ($11,475,000) submitted to Congress (FY 1990). This change includes the following items:

Item	Amount
Revised Estimate Based on Actual Bids	$4,980,000
Price Escalation on Construction Features	270,000
Total	$5,250,000

OTHER INFORMATION: Funds to initiate Preconstruction Engineering and Design (PED) were appropriated in FY 1983 and funds to initiate construction were appropriated in FY 1987. The Water Resources Development Act of 1986 directed the Secretary of the Army to study the adequacy of potential disposal sites necessary for construction, operation and maintenance of the project and to report the results of such study to the Congress by November 1987. This study was completed in September 1987 and results forwarded to Congress in November 1987. All identified upland disposal sites were eliminated for reasons of non-availability, excessive cost or lack of State support. In-harbor sites were found to be unfavorable due to unavailability or lack of capacity. Only two ocean disposal sites, Cape Arundel and the Foul Area, proved adequate. A cost comparison of these two sites clearly indicated that the Cape Arundel ocean disposal site will fulfill the needs of the Portsmouth Harbor project in the most cost effective manner.

The initial bid opening on 20 April 1988 resulted in only one bid which exceeded the government estimate by 82 percent. An alternative method of competitive negotiation was then pursued. Plans and specifications were reissued on 17 October 1988 and fee proposals received on 6 December 1988, were subquently evaluated. The price of the low offer coupled with the cost limit presently in the LCA has resulted in a plan to phase project construction into two contracts. The first contract was awarded in July 1989 and construction was initiated in September 1989.

NEW ENGLAND DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation

a. Channels and Harbors.

The program request of $9,136,000 provides for essential maintenance work on 6 channel and harbor projects named in the list which follows. The work to be accomplished under this activity consists of maintaining the navigation channels and harbors and anchorages of coastal harbors and waterways by means of dredging, snagging, breakwater repairs, and the operation and repair of project structures, all as authorized in the laws adopting river and harbor projects.

	OBLIGATIONS			
Project	Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
Connecticut				
North Cove	0	0	758,000	Periodic maintenance dredging in FY 91.
Massachusetts				
Cape Cod Canal	5,286,000	4,265,000	6,387,000	Paint highway bridge FY 89; repair railroad bridge FY 91.
Chatham (Stage) Harbor	6,000	47,000	907,000	Periodic maintenance dredging in FY 91.
Green Harbor	8,000	10,000	335,000	Periodic maintenance dredging in FY 91.
Newburyport Harbor	0	0	461,000	Periodic maintenance dredging in FY 91.
New Hampshire				
Hampton Harbor	0	10,000	288,000	Periodic maintenance dredging in FY 91.

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NEW ENGLAND DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (Cont'd)

a. Channels and Harbors (Cont'd)

Project	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
Other Projects Maintained Periodically	2,344,000	2,185,000	0	
Total - Channels and Harbors	7,644,000	6,517,000	9,136,000	
b. Locks, Dams & Canals. None				
TOTAL - NAVIGATION	7,644,000	6,517,000	9,136,000	

2. Flood Control

a. Reservoirs.

The program request of $12,141,000 provides for the operational requirements of 31 flood control reservoirs. Requirements include: operation and ordinary maintenance of project facilities; labor, supplies, materials and parts required for day-to-day functioning; periodic maintenance, repairs and replacements; and contract law enforcement.

Project	Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
Connecticut				
Black Rock Lake	272,000	271,000	266,000	

NEW ENGLAND DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

Project	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
Connecticut (Cont'd)				
Colebrook River Lake	133,000	323,000	232,000	Repair public use bridge, paint steel control tower and service bridge FY 90; repair hydraulic lines to gates FY 91.
Hancock Brook Lake	89,000	203,000	255,000	Repair erosion damage FY 90-FY-91; perform periodic inspection FY 91.
Hop Brook Lake	966,000	1,174,000	634,000	Remedial repairs for dam seepage Phase 1 FY 89; Phase 2 FY 90.
Mansfield Hollow Lake	310,000	361,000	333,000	Perform periodic inspection and pavement overlay on dike FY 90.
Northfield Brook Lake	160,000	298,000	220,000	Repair public use bridge FY 90; perform periodic inspection FY 91.
Thomaston Dam	350,000	389,000	425,000	Repair public use bridge FY 90; replace intake structure railing and periodic inspection FY 91.
West Thompson Lake	403,000	411,000	470,000	Periodic inspection FY 91.

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NEW ENGLAND DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

Project	OBLIGATIONS Actual FY 1989 $	 Estimated FY 1990 $	 Estimated FY 1991 $	Explanation of Major Changes
Massachusetts				
Barre Falls Dam	454,000	635,000	431,000	Perform periodic inspection, repair public use bridge, repair service and access bridges and repair gatehouse seepage FY 90.
Birch Hill Dam	491,000	593,000	444,000	Replace guardrails FY 89; install piezometers, replace gatehouse roof and survey archeological site FY 90.
Buffumville Lake	213,000	342,000	291,000	Perform periodic inspection and replace electrical panel FY 90.
Charles River Natural Valley Storage Areas	125,000	150,000	154,000	Increased outgrant and compliance inspections FY 90 and FY 91.
Conant Brook Lake	106,000	162,000	170,000	Install guardrail protection, grade and gravel service road FY 90; perform periodic inspection FY 91.
East Brimfield Lake	340,000	613,000	285,000	Perform periodic inspection and repair two public use bridges FY 90.

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NEW ENGLAND DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

Project	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
Massachusetts (Cont'd)				
Hodges Village Dam	511,000	1,420,000	326,000	Replace electrical transfer system and automate piezometers FY 89; perform periodic inspections and remedial repairs for dam seepage FY 90.
Knightville Dam	503,000	456,000	541,000	Repair service bridge FY 91.
Littleville Lake	559,000	426,000	460,000	Repair dike and dam pavement and repair drainage at toe of dam FY 89.
Tully Lake	460,000	445,000	439,000	
West Hill Dam	636,000	382,000	386,000	Remedial repairs for dam seepage, includes automation of piezometers FY 89.
Westville Lake	258,000	354,000	302,000	Perform periodic inspection and pavement repairs FY 90.

NEW ENGLAND DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

Project	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
New Hampshire				
Blackwater Dam	326,000	344,000	400,000	Repair and paint flood control gates FY 91.
Edward MacDowell Lake	343,000	331,000	355,000	
Franklin Falls Dam	558,000	475,000	591,000	Replace emergency generator and replace gate hoist cables FY 89; replace underground fuel tanks and install piezometers FY 91.
Hopkinton-Everett Lakes	817,000	995,000	1,009,000	Correct sanitary deficiency and resurface roads FY 90; repair concrete conduits, wingwalls, Riverdale Dam, water system FY 91.
Otter Brook Lake	455,000	348,000	370,000	Install piezometers FY 89.
Surry Mountain Lake	331,000	478,000	558,000	Replace electrical panel at gatehouse and conduct dam safety study FY 90; remove fallen rock and replace underground fuel tanks FY 91.

FY 1990 ALLOCATION FOR BOSTON HARBOR

Mr. **Bevill**. Colonel, why is only $10,000 being allocated to the Boston Harbor preconstruction engineering design effort in fiscal year 1990?

Colonel **Wilson**. Sir, as we were finishing up the feasibility report and processing it to the Washington level, it was determined that we should go back and do some bioanalysis, bioaccumulation survey to determine the most feasible dredge disposal site.

So we are continuing that effort under feasibility funding which we were previously considering doing under PED. The $10,000 would be what we would need to initiate PED late in fiscal year 1990 once we finish the feasibility reanalysis.

STATUS ON REPAIRS TO CAPE COD CANAL RAILROAD BRIDGE

Mr. **Bevill**. Would you provide the committee with a status report on the repairs to the railroad bridge over the Cape Cod Canal?

Colonel **Wilson**. Yes, sir.

The railroad bridge was to be repaired. The contract was to initiate last year. As we awarded the contract, we received a protest. We also were enjoined by the railroad in court, since they believed they had the right to repair the bridge under an existing 1935 contract that we had with them for operations and maintenance.

In the final analysis, the court sustained the railroad and directed us to allow the railroad to make the repairs. We have terminated the contract we had awarded and are awaiting submission of the railroad company's plans, as called for in the 1935 agreement, to undertake the repairs. So that is the process we are in right now.

INCREASE IN FY 1990 ALLOCATION FOR EAST BRIMFIELD LAKE, MASS.

Mr. **Bevill**. The fiscal year 1990 allocation for the operation and maintenance of the East Brimfield Lake, Massachusetts is almost $200,000 more than the amount appropriated. How will these extra funds be utilized?

Colonel **Wilson**. The Fiscal Year 1990 request included plans to repair one public use bridge. We have now determined the need to repair two bridges, and the additional amount reflects reprogramming to accomplish that work.

Mr. **Bevill**. I have additional questions that you may answer for the record.

[The information follows:]

QUESTIONS SUBMITTED BY CONGRESSMAN BEVILL

Mr. BEVILL. The FY 1990 Energy and Water Development Appropriations Act provided funds for 10 studies which last year's justification indicated would require additional funds after FY 1990. However, the FY 1991 budget request only includes follow-on funds for two: Long Island Sound West Central Connecticut Coastal Flooding, and Spicket River. What is the status of the other 8 studies?

Colonel WILSON. During this past year we completed the reconnaissance phase of 7 of the studies you refer to. These were for the Ashuelot and Mascoma River basins in New Hampshire; the Kennebec River, Penobscot River, Androscoggin River and Saco River basins in Maine; and the Coastal Breach at Nauset Beach in Chatham, Massachusetts.

The Ashuelot River and Mascoma River studies found no justification to proceed to a feasibility phase. The studies of the four river basins in Maine do recommend proceeding to the feasibility phase for further detailed study of flood damage prevention measures, but the potential solutions identified to address the problems appear to be well within the scope of our Continuing Authorities Program. We intend to continue with cost-shared feasibility studies under the Section 205 Authority and thus have not budgeted for further specific Congressional appropriations.

The completed reconnaissance phase effort for the Coastal Breach at Chatham study does recommend feasibility phase study of navigation problems that have occurred as a result of the breach. However, as with the Maine studies, we expect any forthcoming project recommendations would be within the scope of Section 107 of our Continuing Authorities Program. Feasibility studies will be pursued under that program and we have discontinued budgeting for specific Congressional appropriations for this study.

The last of these 8 studies is the Westfield River Flood Control study for Westfield, Massachusetts. The City of Westfield has indicated that it is unable, at least for the foreseeable future, to provide study cost-sharing funds to continue this study. We have thus terminated our activity, reprogrammed the funds appropriated for FY 1990, and will reclassify the study to the inactive category.

SPICKET RIVER STUDY

Mr. BEVILL. In FY 1990, $100,000, the same as the budget request, was appropriated for the Spicket River, Massachusetts, study. Why is only $35,000 being allocated in FY 1990?

Colonel WILSON. The budget request for FY 1990 was for initiation of the feasibility phase of the study and was developed based on an anticipated completion date for the reconnaissance phase of February 1990. However, based on our workload priorities, we did not initiate the reconnaissance effort until May 1989. Based on the revised reconnaissance phase completion date of May 1990 and allowance for time to negotiate and sign a feasibility cost sharing agreement with a study sponsor, we now feel that $35,000 will be adequate to cover FY 1990 work effort. After reductions for savings and slippage and Gramm-Rudman-Hollings sequestration, the remaining $50,000 has been reprogrammed from the study.

STREAMBANK EROSION ALONG CONNECTICUT RIVER BETWEEN TURNERS FALLS AND NEW HAMPSHIRE STATE BOUNDARY, MASSACHUSETTS

Mr. BEVILL. In FY 1990, $150,000 was provided to initiate a review of streambank erosion problems along the Connecticut River in Massachusetts. What is the status of that effort?

Colonel WILSON. We initiated that study effort last month and the reconnaissance phase report is scheduled for completion in January 1991.

BIDS RECEIVED FOR PORTSMOUTH HARBOR PROJECT

Mr. BEVILL. The justification material indicates that for the Portsmouth Harbor and Piscataqua River project, initial bid opening resulted in a bid that was 82 percent above the Government estimate. Do you have an explanation for the large difference between the Government estimate and the bid received?

Colonel WILSON. There were two key factors which I felt contributed to the significant difference between the bid and the Government estimate. One was engineering judgement relative to estimating the spacing to be used in setting the charges for blasting rock. The spacing is a function of the quality of the rock and its fragmentation characteristics. The bidder assumed a closer spacing than we did, which was a major reason for the cost difference. A second factor was the lack of competition. Having received only one bid, the project did not benefit from the financial advantage of a competitive environment that would have been realized with a large number of bidders. I might note that only two proposals were received in response to the second solicitation, with the low proposal being some 13 percent above the Government estimate.

STATUS OF REVERE BEACH AND TOWN BROOK PROJECTS

Mr. BEVILL. Last year you testified that the Revere Beach, Massachusetts, and Town Brook, Quincy and Braintree, Massachusetts projects were being delayed because of wetland permit problems. Has there been any progress in resolving those problems?

Colonel WILSON. Yes, sir, we have made definite progress in that regard. All permits and other certifications required for construction of these two projects have now been obtained. The local cooperation agreements still remain to be finalized and executed, and the sponsor has to acquire real estate for the Town Brook project. At this time, we are looking at schedules that would take us to construction contract awards later this year.

Mr. Bevill. The Chair recognizes Mr. Myers.

Mr. Myers. Well, thank you, Mr. Chairman.

DAM SAFETY INSPECTION

Thank you, Colonel. I only have one question.

Through the years, it seems like the New England Division area has had more dams built by private interests than any other area of the country, and there were a number of dams identified some years ago that posed a threat for safety reasons.

What is the status of your dam safety inspection program?

Colonel Wilson. The dam safety inspection program, as far as the private dams—has been completed and the information has been turned over to the States and the private sector, to accomplish any necessary repair.

Mr. Myers. Is there any follow-up on your part to make certain that dams that might be considered unsafe are repaired or something is done to eliminate the threat?

Colonel Wilson. As far as the non-Federal structures, that would be up to the States and locals to do that.

Mr. Myers. The responsibility of the Corps was only to make the inspections and pass the information on?

Colonel Wilson. At that particular time, yes, sir.

Mr. Myers. At that particular time? What about now?

Colonel Wilson. We have no additional authority or responsibility at this time.

Mr. Myers. Okay, thank you.

Mr. Bevill. The Chair recognizes Mr. Watkins.

Mr. Watkins. No questions.

Mr. Bevill. I have some questions that Congressman Conte has submitted for you to answer for the record.

Colonel Wilson. I will be happy to do that, sir.

[The information follows:]

Mr. Bevill. Colonel, thank you for a very fine presentation.

Colonel Wilson. Thank you, Mr. Chairman.

QUESTIONS SUBMITTED BY CONGRESSMAN CONTE

CONNECTICUT RIVER STREAMBANK EROSION

Question: Last year, the Corps estimated that a reconnaissance study of streambank erosion problems along the Connecticut River from Turners Falls to the Massachusetts-New Hampshire border would cost $300,000 to perform. I understand that the Division has been allocated $150,000 to perform the study. Is that amount sufficient to complete a comprehensive study of the causes, effects and potential solutions to the erosion problems.

Answer: The $150,000 is sufficient to complete a reconnaissance report; however, it will not be to the level of detail envisioned for $300,000. We are currently evaluating whether the level of detail at $150,000 will be sufficient to satisfy the study objective.

Question: Are you aware that Northeast Utilities is also evaluating the problem of streambank erosion along the Connecticut River and that local conservation commissions are vitally interested in the problem? Are steps being taken to coordinate the efforts of these different groups and to prevent unnecessary duplication of effort?

Answer: Yes, I am aware of the power company's efforts. We have been coordinating with them and the local conservation groups so that we can avoid any unnecessary duplication of effort.

Question: Please describe the current status of the Connecticut River streambank erosion study.

Answer: We initiated study efforts last month. A proposed scope of work has been developed and is being coordinated with the local communities and Northeast Utilities. We are in the process of determining the extent and causes of streambank erosion along the 15-mile reach of the Connecticut River between Turners Falls, Massachusetts, and the New Hampshire state line. Various protection measures will then be evaluated to determine the most cost effective and environmentally acceptable method of reducing further erosion. Our reconnaissance report is scheduled to be completed in January 1991.

NEW ENGLAND DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

Project	OBLIGATIONS Actual FY 1989 $	 Estimated FY 1990 $	 Estimated FY 1991 $	Explanation of Major Changes
Vermont				
Ball Mountain Lake	418,000	459,000	394,000	Remove fallen rock and repair log boom FY 90.
North Hartland Lake	431,000	393,000	366,000	Perform periodic inspection and repair pavement FY 89.
North Springfield Lake	1,181,000	471,000	357,000	Remedial repair for dam seepage and automate piezometers FY 89; paint service bridge FY 90.
Townshend Lake	384,000	439,000	347,000	Conduct dam safety study FY 89; conduct seismic analysis of intake tower and investigate repairs to outlet works FY 90.
Union Village Dam	480,000	522,000	330,000	Perform periodic inspection and repair public use bridge FY 89; dam safety study and repair and paint flood control gates FY 90.
Total - Reservoirs	13,063,000	14,663,000	12,141,000	

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NEW ENGLAND DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

b. Channel Improvements, Inspections and Miscellaneous Maintenance.

The program request of $647,000 provides for the maintenance requirements of 2 hurricane flood protection projects and the inspection of 76 completed projects.

Project	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
Connecticut				
Stamford Hurricane Barrier	201,000	225,000	120,000	Replace boat launch hoist FY 89; automate gear lube system FY 89-90; replace emergency generator FY 90.
Massachusetts				
New Bedford, Fairhaven & Acushnet Hurricane Barrier	199,000	207,000	327,000	Repair concrete stairs to tunnel FY 91.
Inspection of Completed Works	266,000	225,000	200,000	Inspect four additional local protection projects with deficiencies FY 89.
Total - Channel Improvements, Inspections and Miscellaneous Maintenance	666,000	657,000	647,000	
TOTAL - FLOOD CONTROL	13,729,000	15,320,000	12,788,000	

NEW ENGLAND DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

3. Multiple Purpose Power Projects None.

4. Protection of Navigation

The program request of $2,687,000 provides for Project Condition Surveys.

OBLIGATIONS

Project	Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
Project Condition Surveys	1,844,000	2,763,000	2,687,000	Monitor off-shore disposal sites FY 90 and FY 91.
TOTAL - PROTECTION OF NAVIGATION	1,844,000	2,763,000	2,687,000	
GRAND TOTAL - NEW ENGLAND DIVISION	23,217,000	24,600,000	24,611,000	

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PCB'S AT BIRCH HILL DAM

Question: I understand that a problem of excessive PCB concentrations has been identified at Birch Hill Dam. What steps is the Corps taking to evaluate and remedy this situation?

Answer: Our initial surveys taken during the summers of 1988 and 1989 indicated high levels of PCB concentrations. We are in the process of initiating a follow-up investigation in order to carefully delineate the affected area and to determine the full extent of the problem. Once this is done we will make a determination of the possible remedial actions and forward our recommendation to the Massachusetts Division of Water Pollution Control, who has the lead in any remedial work. Copies of our initial findings have been forwarded to the Massachusetts Division of Water Pollution Control and we have been assisting them in posting advisories to fishermen around the reservoir.

CORPS FACILITIES IN THE FIRST CONGRESSIONAL DISTRICT OF MASSACHUSETTS

Question: Please describe the current state of repair of the following Corps facilities maintained in the First Congressional district of Massachusetts: Birch Hill Dam, Knightville Dam, Littleville Lake Dam and Tully Lake Dam.

Answer: All four of the facilities mentioned are currently in good condition. Our annual O&M appropriation provides the funding for the operation, routine maintenance and any necessary repairs at these facilities. Significant repair items included in the FY 91 budget include: rehabilitation of the floodgates and repairs to the bridge deck at Knightville and replacement of the underground fuel tanks at Birch Hill and Tully Lake.

CONSTRUCTION CONTRACT AWARDS

Question: What were the five largest construction contracts awarded for the Civil Works program in the New England Division during Fiscal Year 1989? For each contract, please provide the name of the project, a brief statement of the type of work involved, the date of the contract award, the total value of the contract, and the name and principal place of business of the contractor.

Answer: Following is a list of the five largest construction contracts awarded in FY 1989:

FISCAL YEAR 1990 SEQUESTRATION

Question: Please describe and quantify the impacts of sequestration on your Fiscal Year 1990 operating program.

Answer: The sequestration will not have a significant impact on our FY 90 program. The sequestration resulted in a 1.4 percent reduction in our allocation. Reprogramming authority together with the continued delays encountered in two major construction awards will allow us to manage the sequestration and enable us to go forward with minimal impact to our FY 90 program.

DRUG USE PREVENTION ACTIVITIES

Question: Does the Division conduct any activities designed to reduce, eliminate or prevent the use of drugs? Please describe any such activities and quantify their costs and impacts.

Answer: The Division does not have any programs specifically targeted at the reduction, elimination or prevention of drug use. We do have an employee assistance program which offers, among one of its services, counseling to employees who may be having problems with drug or alcohol use personally, in the office or at home in the family.

Mr. BEVILL. Colonel, thank you for a very fine presentation.

Colonel WILSON. Thank you, Mr. Chairman.

WEDNESDAY, FEBRUARY 21, 1990.

PACIFIC OCEAN DIVISION

WITNESSES

COLONEL (P) CLAIR F. GILL, COMMANDER AND DIVISION ENGINEER
KISUK CHEUNG, DIRECTOR OF ENGINEERING
JOHN R. PELOWSKI, CHIEF, PLANNING DIVISION
RUSSELL H. TAKARA, CHIEF, PROGRAMS MANAGEMENT DIVISION

OPENING REMARKS

Mr. BEVILL. Next, we have the Pacific Ocean Division, Colonel Gill. This is your first appearance, and you have a very impressive biography. As we customarily do, we will put your biography into the record, and you may proceed as you wish.

[The information follows:]

BIOGRAPHY OF COLONEL (P) CLAIR F. GILL, COMMANDER AND DIVISION ENGINEER, PACIFIC OCEAN DIVISION, U.S. ARMY CORPS OF ENGINEERS

Colonel Clair F. Gill became the Commander and Division Engineer of the Pacific Ocean Division, U.S. Army Corps of Engineers in December 1989.

In this capacity he has responsibility for engineering, design, construction and real estate management for the Army and Air Force in Hawaii; and for the Army, Navy and Air Force in Japan, in Korea, and at Kwajalein Atoll in the Republic of the Marshall Islands. The division also oversees the federal water resources activities and regulatory permit program assigned to the Corps of Engineers in the state of Hawaii, the territories of Guam and American Samoa, and the Commonwealth of the Northern Marianas.

Colonel Gill was commissioned as a second lieutenant, Corps of Engineers, upon his June 1965 graduation from the United States Military Academy, West Point, New York. Following Airborne and Ranger schools, his innitial assignment was an Engineer Platoon Leader and Company Executive Officer in the 307th Engineer Battalion, 82nd Airborne Division at Fort Bragg, North Carolina.

Prior to his assignment to the Pacific Ocean Division at Fort Shafter, Hawaii, he commanded the 7th Engineer Brigade, VII Corps, in Germany.

Colonel Gill has held a variety of other key positions. While in the Republic of Vietnam, he served as a Platoon Leader, Company Executive Officer and Liaison Officer with the 8th Engineer Battalion, 1st Cavalry Division, and as Aide-de-Camp to the Chief of Staff, I Field Force. On a later tour, he served as Assistant S-3 of the 46th Engineer Battalion and as Company Commander of the 103rd Engineer Company (Construction Support), 159th Engineer Group.

Upon return to the United States, he served in the Administration and Management Office, Office of the Dean, at the United States Military Academy. He was then assigned as the Facilities Engineer, and later Director of Engineering and Housing for the Ansbach Military Community, Ansbach, Germany. His next assignment was as Executive Officer, 16th Engineer Battalion, 1st Armored Division, Fuerth, Germany. He returned to the United States and commanded the 14th Engineer Battalion (Combat) (Corps) at Fort Ord, California. From 1983 to 1987, he served as a Training and Force Structure analyst, and as Division Chief for Manpower and Force Programs in the Program Analysis and Evaluation Directorate, Office of the Chief of Staff of the Army, Washington, D.C.

Colonel Gill is a graduate of the Engineer Officers' Advanced Course, the U.S. Army Command and General Staff College, and the U.S. Army War College. He received a Master of Science degree in Civil Engineering from the University of California, Berkeley in 1970.

His major awards include the Legion of Merit, Bronze Star Medal with two Oak Leaf Clusters, Meritorious Service Medal, Air Medal, and the Meritorius Unit Citation with two Oak Leaf Clusters.

Colonel Gill is married to the former Sherry Angello of Cornwall, New York. The Gills have three children: Clair A., age 17, Heidi, age 14, and Christopher, age 8.

STATUS REPORT

Colonel Gill. Sir, I am pleased to appear before you for my first time to report on Civil Works activities of the Pacific Ocean Division and to present our program request for Fiscal Year 1991.

With me today are Mr. Kisuk Cheung, Director of Engineering; Mr. John Pelowski, Chief of the Planning Division; and Mr. Russell Takara, Chief of the Programs Management Division.

AREA OF RESPONSIBILITY

The Pacific Ocean Division's Civil Works area of responsibility includes the State of Hawaii, the Territories of Guam and American Samoa, and the Commonwealth of the Northern Mariana Islands. In addition, our Division's military area of responsibility includes the State of Hawaii, the Republic of Korea, Japan, and Kwajalein Atoll. Our total Division area of responsibility covers a large portion of the Pacific basin.

The Division has a long and proud history of providing important water resources projects to the geographically dispersed people whom we serve. Whether a navigation facility to provide for safe boating operations, or a flood control structure to prevent flood damages, or a shore protection project to protect important buildings or highways, all these projects play a vital role in the quality of life for our people in the Pacific.

During my testimony, I will highlight our Fiscal Years 1989 and 1990 activities and present our Fiscal Year 1991 budget request.

FISCAL YEARS 1989 AND 1990 ACTIVITIES

AGAT HARBOR

In Fiscal Year 1989, construction was completed in the $4 million Agat Harbor in Guam. The Government of Guam is presently constructing dock facilities for this project and we expect the harbor to be operational by the end of this year.

KAHOMA STREAM FLOOD CONTROL

Construction has been ongoing and is nearly completed on the $17 million Kahoma Stream Flood Control project in Lahaina, Maui. This project, which has already prevented over $12 million in damages, is scheduled for completion by this summer.

KAHAWAINUI STREAM FLOOD CONTROL

Under Section 205 of the Continuing Authorities program, we are well underway in constructing the $4 million Kahawainui Stream flood control project on the north shore of the island of Oahu. This project, which will protect the town of Laie from future flooding, is scheduled for completion by this summer.

LEPUA SHORE PROTECTION

MASEFAU SHORE PROTECTION

Also underway is construction of shore protection projects at Lepua and Masefau in American Samoa. These two projects will provide much-needed shoreline protection for these two villages in American Samoa.

MAALAEA HARBOR

We will be ready to advertise and award the Maalaea Harbor project on Maui for construction in late Fiscal Year 1990. The project will modify the existing state-built harbor in order to eliminate adverse navigation conditions and will increase the berthing capacity for commercial crafts. Our cost sharing sponsor, the State of Hawaii, has established this project as their first priority for harbor construction and has already appropriated funds for their share of the project.

AGANA RIVER FLOOD CONTROL

The Agana River flood control project in Guam, which we had previously testified that we would award in Fiscal Year 1989, is still on hold because of a lack of financial commitment from the local sponsor.

NANPIL HYDROPOWER

We are continuing training of operations personnel in the Federated States of Micronesia. This is an extension of the Nanpil River Hydropower project, which we completed in 1987.

OPERATION AND MAINTENANCE

Under the Operation and Maintenance program, we plan to complete maintenance dredging for four major harbors in the State of Hawaii. Dredging will be accomplished by our Corps dredge Essayons from the Portland District.

GENERAL INVESTIGATION SURVEY ACTIVITIES

Under the General Investigations survey program, we initiated the Honolulu Urban Flood Control Project in Fiscal Year 1990. We are also continuing feasibility investigations on the Territories Development Study in American Samoa. We completed actions on two other projects; the Coastal Atlas for the Marshall Islands and the Coconut Point project in American Samoa which was terminated due to lack of economic justification.

PRECONSTRUCTION ENGINEERING AND DESIGN

Under the General Investigations, preconstruction engineering and design program, we are continuing efforts on four projects.

MAALAEA HARBOR

As mentioned earlier, we are completing construction plans and specifications on the Maalaea Harbor project on the island of Maui.

ALENAIO STREAM FLOOD CONTROL

The Alenaio Stream Flood Control project will prevent flood damages in Hilo on the big island of Hawaii. Preconstruction engineering and design for the project, which basically consists of a lined channel and floodplain management, will be completed with funds available in Fiscal Year 1990.

KAWAIHAE SMALL BOAT HARBOR

The Kawaihae Small Boat Harbor project, which is on the west coast of the island of Hawaii, will modify a harbor that was constructed in the 1970's. The improved harbor facility will allow for safer operation and increased berthing capacity for commercial fishermen. We will complete preconstruction engineering and design in Fiscal Year 1990.

HILO HARBOR

We initiated preconstruction engineering and design on the Hilo Harbor deepening project on the island of Hawaii.

Mr. Chairman, that briefly covers our Fiscal Years 1989 and 1990 activities, and I will now discuss our Fiscal Year 1991 budget request.

FISCAL YEAR 1991 BUDGET REQUEST

The Pacific Ocean Division's budget request for Fiscal Year 1991 is $5,380,000. A breakdown of the request shows $600,000 for General Investigations, $4,450,000 for Construction, General, and $330,000 for Operation and Maintenance.

GENERAL INVESTIGATIONS

The $600,000 included for General Investigations will fund two survey studies plus preconstruction engineering and design for one project.

TERRITORIES DEVELOPMENT STUDY, AMERICAN SAMOA

$250,000 is requested to continue the feasibility phase of the Territories Development Study in American Samoa. The study, which is being cost shared with the Government of Samoa, will develop a comprehensive plan for shore erosion protection.

URBAN FLOOD CONTROL STUDY, HONOLULU

$200,000 is requested to complete the reconnaissance study and initiate feasibility investigations for the Flood Control Study for Honolulu, Hawaii. The reconnaissance study, which will be completed in early Fiscal Year 1991, will identify possible flood control improvements for the City and County of Honolulu.

HILO HARBOR

$150,000 is requested to continue preconstruction engineering and design for the Hilo Harbor modification project on the island of Hawaii. The project will deepen the entrance channel and turning basin in Hilo Harbor.

CONSTRUCTION, GENERAL

$4,450,000 is requested to continue construction of the $9 million Maalaea Harbor. We anticipate this project to be completed by 1992.

In addition, we expect to have seven projects under construction worth about $6 million funded from the Continuing Authorities program in Fiscal Year 1991.

OPERATION AND MAINTENANCE

Our budget request for Operation and Maintenance is $330,000 and includes funds for the inspection of completed works, environmental dredge studies, project conditions surveys, and the operation of the Regional Visitor Center at Fort DeRussy.

SUMMARY

Our budget request of $5,380,000 is modest in comparison to our total workload in the Pacific and Asia. However, our Civil Works projects have a profound economic, social and strategic impact on these island communities that cover a vast area of the Pacific.

We are most grateful for your understanding and encouragement of our small but highly visible and extremely critical program. This program, I believe, will be even more significant and valuable to the people in our part of the world as we approach the 21st century.

This completes my presentation. I will be pleased to answer any questions which you or other committee members might have.

Mr. Bevill. Thank you, Colonel. We will insert the justification material for the Pacific Ocean Division in the record at this point, without objection.

[The information follows:]

CONSTRUCTION CONTRACT AWARDS

PROJECT	TYPE	AWARD DATE	CONTRACT VALUE	CONTRACTOR
Portsmouth Harbor & Piscataqua River, NH & ME	Improvement Dredging	14 Jul 89	$16,625,100	Great Lakes Dredge & Dock Company, Staten Island, NY
Hodges Village Dam, Oxford, MA	Remedial Dam Repairs	21 Sep 89	1,051,972	Marois Brothers, Inc. Worcester, MA
Western Sand & Gravel Burrillville, RI (Superfund)	Extension of Municipal Water Supply Line	12 Aug 89	879,502	R.H. White Constr Co, Inc., Auburn, MA
Merrimack River, NH	Asbestos Abatement	28 Mar 89	847,850	R. Zoppo Co., Inc. Avon, MA
Cape Cod Canal, Bourne, MA	Paint Sagamore Bridge	19 May 89	833,112	Shipsview Corp. Bourne, MA

JUSTIFICATION OF ESTIMATES FOR CIVIL FUNCTIONS ACTIVITIES
DEPARTMENT OF THE ARMY
FISCAL YEAR 1991

SUMMARY PACIFIC OCEAN DIVISION

	FY 1990 Allocations $	FY 1991 Request $	Increase or Decrease $
General Investigations			
Surveys	372,000	450,000	+78,000
Preconstruction Engineering and Design	383,000	150,000	-233,000
Construction, General			
Construction	592,000	4,450,000	+3,858,000
Operation and Maintenance, General			
Project Operation and Maintenance	2,425,000	330,000	-2,095,000
TOTAL	3,772,000	5,380,000	+1,608,000

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 | Pacific Ocean Division

1. SURVEYS - NEW: None.

2. SURVEYS - CONTINUING

a. Navigation Studies: None.

b. Flood Damage Prevention Studies: The amount of $200,000 is requested in Fiscal Year 1991 to initiate one feasibility study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
HAWAII					
Harbors and Rivers in Hawaii Urban Flood Control Study - Honolulu, Hawaii	750,000	0	171,000	200,000	379,000

Honolulu is the population, economic and government center of the State of Hawaii. The current population of approximately one million comprises approximately 80 percent of the population of the State. The climatic conditions are strongly influenced by the island-type topography and can be quite diverse. Different areas receive rainfall that ranges from 20 inches per year to over 150 inches per year. Honolulu is subject to a number of different types of storms that typically bring heavy rains and can produce intense flooding of short duration due to watersheds that are characteristically steep. Over the last 16 years, there were 7 major flooding events that caused damages in excess of $55 million dollars. Recent flooding (December 31, 1987), which caused approximately $35 million in damages and prompted a Presidential Disaster Declaration, resulted from intense, localized rainfall exceeding 20 inches. Following the December 1987 flood, a State Senate Resolution (1988) and letters from the mayor of Honolulu, State Civil Defense, other government officials and concerned citizens were received pointing to the urgent need for urban flood protection.

With a significant portion of the 1 million population living and working in the valleys and on the coastal plain, the potential for extensive additional flood damage exists which underscores the need for an immediate study of flood damage reduction measures.

This study will address urban flood damage reduction. Fiscal Year 1990 funds are being used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase and initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $900,000, which is to be cost shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share

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may be in-kind services. The scheduled completion date for the reconnaissance studies is January 1991. The feasibility study is scheduled for completion in January 1994. A summary of cost sharing is as follows:

Total Estimated Study Cost	$1,200,000
Reconnaissance Phase (Federal)	300,000
Feasibility Phase (Federal)	450,000
Feasibility Phase (Non-Federal)	450,000

c. Shoreline Protection Studies: None.

d. Special Studies: None.

e. Comprehensive Studies: The amount of $250,000 is requested in Fiscal Year 1991 to continue one feasibility study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
AMERICAN SAMOA					
Territory Development Study - American Samoa	1,276,000	352,000	187,000	250,000	487,000

American Samoa, a group of seven islands, is about 2,700 miles southwest of Hawaii, and 60 miles southeast of the independent state of Western Samoa. The 1985 population of American Samoa was 38,000. More than 90 percent of the population reside on the island of Tutuila, the center of government and business. American Samoa has developed from an agrarian, subsistence economy, to one dependent upon local government employment and Federal subsidization. Most of the basic infrastructure necessary for the economic development is lacking, despite efforts to broaden it's economic base. American Samoa has not been able to attract industrial development. About half of the territory's employment and personal income are in the American Samoa Government. As an underdeveloped island community, American Samoa requires an efficient inter-island waterborne transportation system to meet present and future needs for transporting people as well as consumer goods and products. Shoreline erosion has also been a major concern in the developed coastline areas. This concern is most apparent when considering the limited amount of developable land available in the islands. Other known water and related land resources problems to be addressed by the study are flood mitigation and flood plain management, hurricane and tsunami hazards, land use, economic development, and preservation of natural resources.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Pacific Ocean Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

American Samoa has a tropical rain forest climate. In recent years, these islands have experienced severe damage from hurricanes, tropical storms and heavy rainfall. Damage assessment for public and private properties due to Hurricane Tusi, which occurred in January 1987 with sustained winds of 110 mph and gusts up to 150 mph, was $6.8 million. Damages included complete destruction of three villages, erosion along shoreline roads, and stream bank erosion 100 feet or more in width. Similarly, in 1981, tropical storm Esau, with sustained winds of 58 mph with gusts up to 80 mph, caused about $2.2 million worth of damages. Ofu Harbor breakwater and an elementary school were severely damaged by large ocean surges. In 1985 and 1979, heavy rain and flash flood waters triggered land and mudslides that caused about $0.6 and $0.9 million roadway and utilities damages, respectively. Although the dollar figures may seem low, the damages done to these small island communities, however, have been devastating. Hurricanes and tropical storms occur on the average of once in 2.5 years.

Section 702 of the Water Resources Development Act (WRDA) of 1986 authorizes the Secretary of the Army to make studies in cooperation with the Secretary of the Interior and the local government for the purpose of providing plans for the development, utilization, and conservation of water and related land resources.

A previous study, the American Samoa Water Resources Study (ASWRS) was completed in 1981. Although the water resources problem areas were identified, the study concluded that further Federal involvement was not warranted at that time. Subsequently, numerous discussions on problems, areas of particular concern, and general Corps assistance have been held with local government officials. As the territory seeks infrastructure development, economic growth and ways to sustain population in the outer islands to avoid concentration of population on Tutuila, Corps efforts to conduct this study are clearly desired and needed as expressed by the local interests in the recent past for Corps assistance.

Fiscal Year 1990 funds are being used to initiate the feasibility phase at Federal expense. Fiscal Year 1991 funds will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,448,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests after adjusting for the $200,000 waiver as authorized by Section 1156 of the WRDA of 1986. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,800,000
Reconnaissance Phase (Federal)	352,000
Feasibility Phase (Federal)	924,000
Feasibility Phase (Non-Federal)	524,000

The feasibility study is scheduled for completion in September 1993.

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
f. Project Review Studies: None.					
TOTAL SURVEYS - CONTINUING	2,026,000	352,000	358,000	450,000	866,000
3. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (NEW): None.					
4. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (CONTINUING):					
a. Navigation: The amount of $150,000 is requested in Fiscal Year 1991 to continue one PED study.					
HAWAII					
Hilo Harbor, HI	450,000	0	64,000	150,000	236,000

Hilo Harbor is located on the northeastern coast of the island of Hawaii. The existing Federal project, a 35-foot-deep channel and basin and a 10,080-foot-long breakwater was completed in 1930. Since then the economy and population of the County of Hawaii has grown considerably. The existing project, which was designed for smaller vessels than are used today, does not permit larger capacity ships to enter or depart Hilo Harbor fully loaded. Statistics from the Waterborne Commerce (1987) indicate a total of 1.4 million short tons are shipped to and from Hilo Harbor annually. Major commodities shipped include sugar, molasses, fabricated metal products, transportation of equipment and vehicles, fuel and other food products.

The authorized project provides for deepening the entrance channel from 35-feet to 39-feet and deepening the turning basin from 35-feet to 38-feet. The deepening of the harbor provides for safe navigation of transocean vessels. The estimated project construction cost is $4,280,000 and the average annual benefits amount to $700,000, all attributable to commercial navigation cost savings. The benefit-cost ratio is 1.7 to 1 at 8 7/8 percent.

The Hilo Harbor modification project is authorized for construction by the Water Resources Development Act of 1986. Cost sharing for the project will require local interests to provide a cash contribution of 25 percent of the project first cost during construction, presently estimated at $960,000, and an additional 10 percent less credit for the value of all lands, easements, rights-of-way and relocation (LERR) and suitable areas for dredged material disposal payable over a period not to exceed 30 years. The State of Hawaii, the local sponsor, supports the preconstruction engineering and design effort for this project and has the financial capability to provide assurance for construction, subject to Legislative

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

appropriation of funds. In a letter dated May 11, 1989 from the State of Hawaii, Hilo Harbor modification was identified as a top priority project to be included in the State's Construction Investment Program tentatively scheduled for construction in 1993.

Fiscal Year 1990 funds are being used to initiate preconstruction engineering and design which includes hydrographic surveys, and the initiation of foundation investigations, and economic analyses A design memorandum is presently scheduled for completion in August 1991, followed by the initiation of construction plans and specifications. Preconstruction engineering and design is scheduled for completion in December 1992.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
SUBTOTAL NAVIGATION	450,000	0	64,000	150,000	236,000
TOTAL PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - CONTINUING	450,000	0	64,000	150,000	236,000
GRAND TOTAL - SURVEYS AND PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES	2,476,000	352,000	422,000	600,000	1,102,000

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Maalaea Harbor, Maui, Hawaii (Continuing)

LOCATION: Maalaea Bay is situated on the southwest coast of Maui, approximately 7 miles south of Wailuku, the county seat of Maui, State of Hawaii.

DESCRIPTION: The authorized plan consists of improvements to an existing State owned facility, initially constructed by the State of Hawaii in 1952 and includes a 620 foot long extension of the south breakwater, a new 610 foot long, 150 to 180 foot wide, 12 to 15 foot deep entrance channel, a 1.7 acre by 12 foot deep turning basin and a 720 foot long, 80 foot wide and an 8 foot deep access channel. The improvements will provide an increase in berthing capacity from 93 to 310 crafts.

AUTHORIZATION: Section 101 of the Rivers and Harbors Act of August 13, 1968 (Public Law 90-483) in accordance with provisions contained in House Document No. 353, 90th Congress, 2nd Session, dated July 8, 1968.

REMAINING BENEFIT-REMAINING COST RATIO: 6.0 to 1 at 3-1/4 percent.

TOTAL BENEFIT-COST RATIO: 5.6 to 1 at 3-1/4 percent.

INITIAL BENEFIT-COST RATIO: 5.6 to 1 at 3-1/4 percent (FY 1990). The benefit-cost ratio is based on the project functioning independently.

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in July 1989 at 1989 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM PCT OF EST FED COST	STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost (CofE)	$6,820,000			Entire Project	0	Feb 1992
Estimated Federal Cost (USCG)	20,000					
Estimated Total Federal Cost		$6,840,000				
Estimated Non-Federal Cost		2,060,000				
Cash Contribution	$ 990,000					
Other Costs	1,070,000					

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SUMMARIZED FINANCIAL DATA (Continued)		ACCUM PCT OF EST FED COST
Total Estimated Project Cost	$8,900,000	
Allocations to 30 September 1989	$ 395,000	
Conference Allowance for FY 1990	600,000	
Allocation for FY 1990	592,000 1/	
Allocations through FY 1990	987,000	14
Allocation Requested for FY 1991	4,450,000	80
Scheduled Balance to Complete after FY 1991	1,383,000	100
Unscheduled Balance to Complete after FY 1991	0	

PHYSICAL DATA

Entrance Channel:
Length - 610 feet
Width - 150 to 180 feet
Depth - 12 to 15 feet

Access Channel:
Length - 720 feet
Width - 80 feet
Depth - 8 feet

Turning Basin:
Area - 1.7 acres
Depth - 12 feet

Breakwater:
Length - 620 feet

1/ Reflects $8,000 sequestered in accordance with the Gramm-Rudman-Hollings Act.

JUSTIFICATION: Craft entering the present Maalaea Harbor are adversely affected by the deepwater swell and wave action generated by southerly storms sweeping across the vast expanses of the Pacific Ocean. With the present entrance channel alignment, storm waves roll directly into the harbor basin creating hazardous surge and damaging wave action at the dock facilities. The existing 12 foot entrance channel depth is not adequate for safe operation of the larger commercial fishing vessels when wave heights in the channel are 6 feet or greater. The enlargement, deepening and the relocation of the entrance channel and extension of the existing south breakwater would reduce surge and wave action within the basin. These improvements would also increase the usable harbor area, and provide safer navigation conditions for crafts using this facility. The harbor when fully developed would have a basin area of 13.5 acres with a capacity of approximately 310 base crafts.

Annual Benefits	Amount
Commercial Fishing	$2,247,000
Recreational Boating	176,000
Total	$2,423,000

JOHNSTON ISLAND

Mr. **Bevill**. The Chair recognizes Mr. Myers.

Mr. **Myers**. Well, thank you, Mr. Chairman.

I notice that there is no discussion about the Johnston Atoll chemical munitions demilitarization program. Do you have any responsibilities for this project?

Colonel **Gill**. Not any more, sir. Construction, which was done as part of our military mission, was completed by the Pacific Ocean Division about a year ago and the facility turned over to the local Army command for operation.

They expect to start testing with live agent in about a month.

Mr. **Myers**. But you have no responsibility at this point?

Colonel **Gill**. No, sir. We completed the project, turned it over, and the local command is putting it into operation.

Mr. **Myers**. It is a turnkey operation, then?

Colonel **Gill**. Similar to that. We hope it is a success story.

Mr. **Myers**. So do I. I am from an area that is stuck with some of that stuff.

I went about a year ago to look at the facility on Johnston Atoll, and we thought it was going to be operating. For some reason they did not get around to operating it, so I guess when it is really operating, I will have to take a look at it again.

Colonel **Gill**. I am confident that it will work.

Mr. **Myers**. Would you mind coming out to my Congressional District and telling the people there? There is some of that material stored about 20 miles from my home, and the people just are not comfortable with what the Army has proposed. I am not smart enough to make a judgement at this point. But, I am going to learn rather fast.

Colonel **Gill**. Yes, sir.

Mr. **Myers**. Thank you very much.

AGANA RIVER FLOOD CONTROL

Mr. **Bevill**. What is the status of the Agana River flood control project in Guam?

Colonel **Gill**. Sir, we presently have that project on hold. The Government of Guam has not been able to commit to fulfill its part of the cost-sharing agreement.

Mr. **Bevill**. Is there any question about the amount of cost-sharing?

Colonel **Gill**. No, sir. It is a political issue with the Government. We are ready to proceed with the project and hoping that they will not have a hurricane which will cause a great deal of damage in that community.

Mr. **Bevill**. So you are waiting until they resolve it?

Colonel **Gill**. Sir, we are not waiting, we are pressing, but short of a flood right now, or a change of government, I am not sure what is going to happen.

Mr. **Bevill**. They are aware of the danger?

Colonel **Gill**. Yes, sir. They are aware of the danger and the fact that we would address this project at this testimony.

TERRITORIES DEVELOPMENT STUDY, AMERICAN SAMOA

Mr. **Bevill**. Has the Territorial Development Study for American Samoa identified any water resource problems where Federal involvement appears warranted?

Colonel **Gill**. Sir, that study is not completed at the moment, but we have definitely found some shore erosion problems. American Samoa is faced with a continuing effort to protect their only line of transportation and communication that girds most of the island. As you may be aware, in the beginning of February, they had a very severe hurricane which proved the worth of some of our shoreline structures and demonstrated the need to continue what we are doing.

Mr. **Bevill**. Speaking of American Samoa, do they still have that colorful welcoming ceremony there that I witnessed with Speaker O'Neill? Have you ever seen that?

Colonel **Gill**. That is Flag Day, sir, and I have yet to see it. I was invited down there, but I had higher priority things to do, so I had to decline.

Mr. **Bevill**. I would recommend it to you very highly. I have not talked very much about Southern hospitality since I saw that.

CONTINUING AUTHORITIES

Would you provide a list of the projects that you have under construction under the Continuing Authorities program? What work do you have planned for Fiscal Year 1991?

Colonel **Gill**. Presently, we have three projects under construction. These are the Kahawainui Stream Flood Control project on Oahu, the Lepua and Masefau Shore Protection projects in American Samoa. In Fiscal Year 1991 we expect to have seven projects under construction. These include continuing construction on the Lepua and Masefau projects, four Section 14 projects which include projects at Lauliifou, Olosega, Poloa in American Samoa and Saipan Beach Road in the Commonwealth of the Northern Mariana Islands, and the Sand Island shore protection project on Oahu.

Mr. **Bevill**. I have other questions that I will submit for the record. Also, Mr. Akaka and Mr. Conte have questions which we would like you to answer for the record.

Colonel **Gill**. Yes sir.

[The information follows:]

QUESTIONS SUBMITTED BY CONGRESSMAN BEVILL

CONSTRUCTION NEW STARTS

Mr. BEVILL. Last year General Williams testified that the Kawaihae Small Boat Harbor and Alenaio Stream Flood Control project would be ready for construction in FY 1991. Did you request those projects be included in the budget as new starts?

Colonel GILL Yes, sir. The Division requested both projects for consideration as FY 1991 new starts.

MAALAEA HARBOR

Mr. BEVILL. Do you anticipate any problems executing the local cooperation agreement for the Maalaea Harbor project?

Colonel GILL. No, the State of Hawaii has established the Maalaea project as their first priority for harbor construction and has already appropriated funds for their share of the project. The local cooperation agreement is scheduled for execution in May 1990.

QUESTIONS SUBMITTED BY CONGRESSMAN AKAKA

MAALAEA HARBOR

Mr. AKAKA. What is the current schedule for initiating construction on the Maalaea harbor?

Colonel GILL. Presently, we anticipate awarding the construction contract for the Maalaea project in July 1990.

Mr. AKAKA. How are you addressing the concerns of 1) condominium owners, 2) surfers, and 3) whale enthusiasts?

Colonel GILL. Noise level and property value studies are being undertaken as part of the environmental assessment to address concerns of the condominium owners. The realignment of the entrance channel will eliminate one of the surfing breaks. Possible mitigation measures, such as creation of artificial surfing breaks, are being considered in the environmental assessment. The National Marine Fisheries Service is presently analyzing the impacts of the harbor and harbor construction on the whales. The recommendations of the National Marine Fisheries will be adopted.

Mr. AKAKA. What steps will you take to ensure that the harbor development is consistent with the need to protect the humpback whales?

Colonel GILL. The National Marine Fisheries Service is presently studying the effects of the harbor development on the whales. Their recommendations are expected in March 1990 and will be incorporated into the project.

FISCAL YEAR 1991: The requested amount of $4,450,000 will be applied as follows:

Continue Channel Construction	$ 780,000
Continue Breakwater Construction	3,440,000
Engineering and Design	30,000
Supervision and Administration	200,000
Total	$4,450,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$10,000	
Pay one-half of the separable and joint costs allocated to recreational navigation and bear all costs of operation, maintenance, and replacement of recreational navigation facilities.	$280,000	$3,000
Pay 10 percent of the costs allocated to commercial navigation during construction and all costs associated with the construction of the interior revetted moles. It does not include reimbursement of the additional 10 percent of costs allocated to commerial navigation within a period of 30 years following completion of construction.	$1,770,000	
Total Non-Federal Costs	$2,060,000	$3,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction and reimburse its share of construction costs over the life of the project.

STATUS OF LOCAL COOPERATION: The non-Federal sponsor is the State of Hawaii. The State Department of Transportation, by letter dated May 11, 1989, has reaffirmed that they are able and willing to cost share the project first cost, estimated at $8,900,000, and annual operation and maintenance costs, estimated at $41,000. The draft local cooperation is in preparation and is scheduled to be executed in May 1990. The entire local share of the project first costs was appropriated by the 1989 State of Hawaii Legislature for the Harbors Division Capital Improvements Program (CIP) for the State's fiscal 1990-1991 biennium. The appropriation was verified by letter from the State Department of Transportation, dated May 11, 1989.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (Corps of Engineers) cost estimate of $6,820,000 is the initial estimate presented to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS was filed with the EPA on April 28, 1980. No significant changes in environmental conditions have occurred since the FEIS was filed.

OTHER INFORMATION: The General Design Memorandum was approved in May 1982. Preconstruction engineering and design funds were appropriated in Fiscal Year 1989 to review the economics and local cost sharing provisions, review the environmental impacts of the project and to issue a supplemental information report, to complete the construction plans and specifications, and to develop and coordinate the Local Cooperation Agreement with the State of Hawaii. Funds to initiate construction were appropriated in Fiscal Year 1990.

PACIFIC OCEAN DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation.

a. Channels and Harbors.

The program request of $185,000 provides for environmental dredging studies in preparation for maintenance dredging at two major harbors in the State of Hawaii. It also provides for salaries, maintenance of display and slide projection rooms and materials essential in the operation of the Regional Visitor center.

	OBLIGATIONS			
Project	Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
Barbers Point Harbor	53,000	47,000	55,000	Replacement of audio-visual equipment in FY89
Kaunakakai Harbor	0	0	65,000	Perform environmental dredging studies
Port Allen Harbor	0	0	65,000	Perform environmental dredging studies
Other Projects Periodically Maintained	294,000	2,250,000	0	
Sub-total - Channels and Harbors	347,000	2,297,000	185,000	

b. Locks and Dams. NONE

TOTAL NAVIGATION	347,000	2,297,000	185,000

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PACIFIC OCEAN DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control

a. Reservoirs. NONE

b. Channel Improvements, Inspection and Miscellaneous.

The program request of $41,000 provides for the inspection of completed projects during FY91.

Project	OBLIGATIONS Actual FY 1989 $	 Estimated FY 1990 $	 Estimated FY 1991 $	Explanation of Major Changes
Inspection of Completed Works	21,000	36,000	41,000	Increased site surveys and inspections in FY90 and FY91
Other Projects Periodically Maintained	5,000	0	0	
Sub-total - Channel Improvements, Inspection, and Miscellaneous Maintenance	26,000	36,000	41,000	
TOTAL FLOOD CONTROL	26,000	36,000	41,000	

3. Multiple-Purpose Power Projects. NONE

PACIFIC OCEAN DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

4. Protection of Navigation.

The program request of $104,000 provides for condition surveys of seven harbors in FY91.

Project	OBLIGATIONS Actual FY 1989 $	 Estimated FY 1990 $	 Estimated FY 1991 $	Explanation of Major Changes
Project Condition Surveys	115,000	92,000	104,000	Additional hydrographic surveys to be completed in FY91
TOTAL PROTECTION OF NAVIGATION	115,000	92,000	104,000	
GRAND TOTAL - PACIFIC OCEAN DIVISION	488,000	2,425,000	330,000	

[illegible] JAN [illegible]

Mr. AKAKA. Describe the formula for cost sharing the FY 1989 design funds.

Colonel GILL. FY 1989 funds were provided to complete design. Design costs are initially Federally funded but ultimately cost shared in accordance with provisions of the Water Resources Act of 1986 at the same percentage as project construction. The current estimate is for the State of Hawaii to provide 24% of the total project first cost.

Mr. AKAKA. What is the schedule for completion of the PED phase.

Colonel GILL. The PED phase is scheduled for completion in April 1990.

Mr. AKAKA. Identify the construction funding requirements, by fiscal year.

Colonel GILL. The current Federal funding requirements are $0.6M for FY 1990, $4.5M for FY 1991, and $1.4M for FY 1992.

Mr. AKAKA. What is the anticipated cost sharing for the construction phase?

Colonel GILL. The anticipated cost sharing based on an estimated project first cost of $8.9M is $6.8M Federal and $2.1M Non-Federal.

Mr. AKAKA. How much has the state allocated to this project to date?

Colonel GILL. $4M has already been appropriated by the State of Hawaii for this project.

Mr. AKAKA. What is the State's estimated post-construction funding requirements for boat slips and on-shore development? When will these funds be available?

Colonel GILL. Estimated funding requirements for follow-on work are estimated at $4M. The State is planning to appropriate these funds in the FY 1992/93 timeframe.

KAHOMA STREAM FLOOD CONTROL PROJECT

Mr. AKAKA. What is the current status of the Kahoma project?

Colonel GILL. Presently, the Kahoma Stream Flood Control project is approximately 95% complete. Completion is scheduled for April 1990.

Mr. AKAKA. Describe the development in the area that will receive protection by the project.

Colonel GILL. Development in the Kahoma Stream floodplain consists of residential, commercial, and industrial structures. Land and structures are valued at more than $330M.

SAND ISLAND BEACH EROSION PROJECT

Mr. AKAKA. Funds for the Sand Island Beach Erosion Project were included in the FY 1987 and FY 1988 bills. What is the status of this project?

Colonel GILL. We have all documents ready for advertising, however, the local sponsor has not been able to obtain their local permit clearances. Depending on local clearances, award could be by the end of this fiscal year.

HONOLULU FLOOD CONTROL STUDY

Mr. AKAKA. What is the status of the Honolulu Flood Control Study?

Colonel GILL. The reconnaissance study was initiated in January 1990.

Mr. AKAKA. When will this study be completed?

Colonel GILL. The reconnaissance study is scheduled for completion in January 1991.

KAWAIHAE HARBOR

Mr. AKAKA. What is the status of preconstruction activities for the Kawaihae Harbor project?

Colonel GILL. Preconstruction engineering and design is underway and is scheduled for completion in FY 1990 with available funds.

Mr. AKAKA. What is the benefit to cost ratio of the Kawaihae project?

Colonel GILL. The present benefit to cost ratio is 2.1 to 1.

Mr. AKAKA. Estimate the first year construction cost of this project?

Colonel GILL. The estimated first year construction cost is $1M.

QUESTIONS SUBMITTED BY CONGRESSMAN CONTE

LEONE HARBOR

Mr. CONTE. Has a decision been made on whether to require an Environmental Impact Statement for the proposed Leone Harbor project?

Colonel GILL. In FY 1986, the American Samoa Government applied for a Department of Army permit to construct a commercial harbor at Leone. The public notice elicited a number of environmentally related comments from the public as well as other government agencies. Consequently, we requested that the American Samoa Government perform additional environmental analysis which would be the basis for our decision to require an Environmental Impact Statement. The additional analysis was never provided and the permit request was cancelled in June 1989.

Mr. CONTE. Has the Corps determined what type of mitigation measures may be appropriate to protect the coral reef in the harbor in the event that a permit is issued for the project?

Colonel GILL. No, any mitigation measures would have been determined upon receipt of the additional environmental analysis.

IMPACTS OF FY 1990 SEQUESTRATION

Mr. CONTE. Please describe and quantify the impacts of sequestration on your fiscal year 1990 operating program.

Colonel GILL. The Fiscal Year 1990 sequestration of 1.4% will not have a major impact upon execution of our Civil Works program.

DRUG PROGRAMS

Mr. CONTE. Does the Division conduct any activities designed to reduce, eliminate or prevent the use of drugs? Please describe any such activities and quantify their costs and impacts.

Colonel GILL. The Pacific Ocean Division and its Districts are tenant organizations of Army installations under interservice support agreements. In all cases, the servicing installations have Employee Assistance Programs which can provide counselling to employees on drugs and drug issues. POD employees are eligible for this service. In addition, the Division provides employees with informational seminars and publications to address the drug issue. Costs for the our drug efforts are minimal.

[The information follows:]

CLOSING REMARKS

Mr. **Bevill**. Thank you very much for a fine presentation. You did very well here on your first appearance.

Colonel **Gill**. Thank you.

THURSDAY, FEBRUARY 22, 1990.

SOUTH ATLANTIC DIVISION

WITNESSES

MAJOR GENERAL ROBERT M. BUNKER, DIVISION ENGINEER, SOUTH ATLANTIC DIVISION

WILLIAM H. OSBORNE, CHIEF, PROGRAMS MANAGEMENT OFFICE

BRIAN D. TARRAS, ASSISTANT CHIEF, PROGRAMS MANAGEMENT OFFICE

OPENING REMARKS

Mr. **BEVILL**. The committee will come to order. Today, we have the South Atlantic Division.

General Bunker, we are always pleased to hear from you and your fine staff, so you may proceed as you wish.

General **BUNKER**. Thank you, sir. I would like to open with a short opening statement, if I may, and then take your questions.

Mr. **BEVILL**. That will be fine.

INTRODUCTION

General **BUNKER**. Mr. Chairman and members of the committee, I am pleased to appear before you again to present my status report on the South Atlantic Division Civil Works Program. Accompanying me are Mr. Bill Osborne and Mr. Brian Tarras of my Programs Management Office.

DIVISION AREA

The South Atlantic Division Civil Works area encompasses all or part of seven southeastern States, Puerto Rico, and the U.S. Virgin Islands. Our headquarters is located in Atlanta, with District Offices from North Carolina to Alabama. The Middle East/Africa Projects Office in Virginia provides overseas support and has no civil works within its boundaries.

FISCAL YEAR 1989

This has proven to be an interesting and challenging year. It began with managing water resources in response to the drought of record in the southeast. It included emergency actions responding to devastation to the Virgin Islands, Puerto Rico, South and North Carolina caused by Hurricane Hugo. St. Croix, in the Virgin Islands, was devastated. Puerto Rico fared somewhat better. The South Carolina coast took the brunt on the mainland.

Under the new gap legislation, we provided emergency water supply in Puerto Rico. After a Presidential declaration of disaster, the Corps assisted the Federal Emergency Management Agency in Federal support throughout the area. The year ended with our providing much the same support to the Department of Defense and the Agency for International Development for post-combat needs in Panama, and Corps personnel are now working with reconstruction in that country.

FISCAL YEAR 1990 CONGRESSIONAL ADDS

Within our Civil Works Program, of the new projects added by Congress in Fiscal Year 1990, 10 projects are funded to complete the work, or fund the effort through Fiscal Year 1991. Our budget request does include funds to continue 11 studies and projects, some of which are discussed in my status report.

OVERALL BUDGET

We are requesting almost $345 million in Fiscal Year 1991.

GENERAL INVESTIGATIONS

About $13 million is for the General Investigations Program.

SURVEYS

CONTINUING

CHICKASAW CREEK, ALABAMA

The Chickasaw Creek channel in Mobile Bay was deepened in 1981 by local interests. A study is being initiated this year to determine the optimum channel size to support tanker traffic. Requested funds will allow completion of the reconnaissance report.

CAPE FEAR, NORTHEAST CAPE FEAR RIVER, NORTH CAROLINA

The Cape Fear, Northeast Cape Fear River Project provides commercial navigation channels from the Atlantic Ocean through Wilmington Harbor, North Carolina, to the northwest. A study is being initiated this year to determine the need for channel improvements. Fiscal Year 1991 funds will be used to complete the reconnaissance report.

PASCAGOULA RIVER BASIN, MISSISSIPPI

The Pascagoula River Basin Study will be resumed to evaluate commercial navigation on the main stem of the river, and flooding on tributary streams. Requested funds will be used to execute a feasibility study cost-sharing agreement and initiate economic and planning studies.

GLYNN COUNTY BEACHES, GEORGIA

The Glynn County beaches of Jekyll, St. Simons, and Sea Island are subject to damages by coastal flooding and shoreline erosion from storms and hurricanes. Fiscal Year 1990 funds are being used to complete the reconnaissance report and negotiate a feasibility study cost-sharing agreement. The requested funds will allow initiation of detailed planning and economic studies.

PRECONSTRUCTION ENGINEERING AND DESIGN

NEW STARTS

MOREHEAD CITY HARBOR, NORTH CAROLINA

Morehead City Harbor is a deep draft project midway along the North Carolina coast. The feasibility report is being completed this year. The anticipated plan of improvement will provide for enlarging the channels to better accommodate larger vessels. Preconstruction engineering and design of those channels will be initiated with the requested funds.

RICHARD B. RUSSELL WILDLIFE MITIGATION, GEORGIA

Several efforts will be underway in Fiscal Year 1991 on the Richard B. Russell Project. Design will be initiated for mitigation of fish and wildlife losses resulting from project construction and operation. Under the Construction, General appropriation, work will continue on recreation facilities, installation of the reversible pump units, and studies to determine the need for a system to protect fish while operating the pumps in the pumpback mode.

PRECONSTRUCTION ENGINEERING AND DESIGN

CONTINUING

CANAVERAL HARBOR, FLORIDA

Funds are requested for two design efforts and one construction effort at Canaveral Harbor, Florida. Project design is being initiated to improve navigation facilities and to develop a system to bypass sand across the channel entrance for the reduction of maintenance dredging and land loss. Construction will be initiated on mitigation measures associated with existing project construction.

RIO PUERTO NUEVO, PUERTO RICO

Flooding in the Rio Puerto Nuevo Basin affects residential, industrial, and commercial development in southern Puerto Rico. Requested funds will complete the design of flood protection facilities.

FOLLY BEACH, SOUTH CAROLINA

Folly Beach, South Carolina is a fully developed residential and commercial area that is subject to shoreline erosion and storm damage, and was substantially damaged by Hugo. Design is underway to provide for beach restoration with periodic nourishment. Requested funds will be used to continue the design.

MYRTLE BEACH, SOUTH CAROLINA

The highly developed Myrtle Beach, South Carolina area also suffered heavy damage from Hurricane Hugo. The Corps, in early October, participated in the emergency restoration of about 40 miles of shoreline. Design is being initiated this year to provide 22.6 miles of protective beach to reduce storm damage. Requested funds will continue that design.

CONSTRUCTION, GENERAL

I am requesting $127.2 million to continue the construction program.

TENNESSEE-TOMBIGBEE WATERWAY WILDLIFE MITIGATION, ALABAMA AND MISSISSIPPI

Mitigation initiatives are being undertaken this year to replace wildlife losses that resulted from construction of the Tenn-Tom Waterway. The requested funds will allow for land purchases.

WILLIAM BACON OLIVER LOCK AND DAM, ALABAMA

Construction of the William Bacon Oliver lock and dam replacement is progressing well. The lock and dam construction contract was awarded in March of 1988. Installation of the miter gates began last month. The project is scheduled for completion in 1992.

THREEMILE CREEK, ALABAMA

Construction is continuing on the Threemile Creek, Alabama Project. When that 5.6 mile channel improvement is completed in September 1992, it will provide flood protection through the city of Mobile.

PORTUGUES AND BUCANA RIVERS, PUERTO RICO

The Portugues and Bucana Rivers Project provides flood control to Ponce, Puerto Rico through construction of two high level dams and channel improvements. Construction of the debris basins to complete the channel work is continuing. The Cerrillos Dam construction was not damaged by Hurricane Hugo, and is about 65 percent complete. In partnership with the Commonwealth, the Portugues Dam is being designed to initially provide flood protection, with future expansion for water supply. All costs associated with water supply will be funded up front by the Commonwealth.

SARASOTA COUNTY, FLORIDA

The Sarasota County, Florida project provides a protective beach along portions of the highly developed area south of Tampa. Design is underway this year to provide nourishment to the Venice segment of the project. Construction will be accomplished with requested funds.

OPERATIONS AND MAINTENANCE

The largest category of our Fiscal Year 1991 request is for operations and maintenance. We are requesting $204.2 million to ensure that completed projects remain functional for their authorized purposes.

NAVIGATION

Navigation accounts for nearly $130 million of our request. This allows us to maintain 29 major harbors and 3,800 miles of inland waterways, with 33 locks and dams.

TENNESSEE-TOMBIGBEE WATERWAY, ALABAMA AND MISSISSIPPI

The tonnage on the Tenn-Tom Waterway continues to grow. High tonnage in 1988 resulted from drought conditions on the lower Mississippi River. Cargo shipments have now returned to the growth pattern evident prior to the drought.

FLOOD CONTROL

Flood control projects account for $10 million of our request. These projects have yielded benefits of about $1 billion in flood damages prevented over the last 50 years.

MULTIPLE PURPOSE

The 13 multiple purpose projects which we operate and maintain account for $60.4 million of our operations and maintenance request. These projects provide a variety of benefits, including hydroelectric power production. These projects generated about 3.5 million megawatt hours of power last year.

DAMS

Mr. Bevill. What are the two dams shown on the slide?

General Bunker. Russell is on the right, sir, and Carters is on the left. Richard B. Russell is in Georgia and South Carolina, sir.

Mr. Bevill. That's on the Savannah River?

General Bunker. Yes, sir, and Carters is upstream on the Coosa-Alabama system, sir.

PROTECTION OF NAVIGATION

Protecting navigation on our waterways is vital to the economic well-being of the Nation. We are requesting $4.2 million for this purpose, which includes depth surveys and the removal of aquatic growth.

RECREATION

Recreation is very popular at all our lakes and we continue to be among the leaders in visitation of Corps lakes.

DROUGHT UPDATE

I am pleased to report that our lakes in Georgia and South Carolina returned to normal operating conditions last summer, as a result of stringent conservation efforts and above average rainfall. With the abnormal rainfall so far this month, we are presently operating under flood conditions in Mississippi, Alabama, and much of Georgia. As of this morning, three counties in Alabama have been declared as Federal disaster areas, and Georgia has requested a Federal declaration on nine additional counties. Strangely, in central and southern Florida, the severe drought continues. I now expect that conservation measures will be required, at least through next summer, in much of FLorida. A combination of a decade of drought and continued developmental pressures in the southeast has, however, properly continued to raise the level of public interest and concern over both the management and the allocation of water resources. While the resolution of these vital issues lies primarily with and among the involved States, we will continue our ongoing efforts to ensure optimum operation of our Federal projects and to facilitate interstate decisions.

CONCLUSION

As you can see, the South Atlantic Division continues to have an important and active Civil Works program. We have thrived on the challenges and opportunities of the past year and look forward with confidence to another year of service to the American people. Mr. Chairman, this concludes my status report, sir, and I would be delighted to respond to your questions.

JUSTIFICATION SHEETS

Mr. BEVILL. Thank you. We will insert the justification material for the South Atlantic Division in the record at this point, without objection.

[The information follows:]

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1991
SUMMARY SOUTH ATLANTIC DIVISION

	FY 1990 Allocations $	FY 1991 Request $	Increase/ Decrease $
General Investigations			
Surveys	3,513,000	3,159,000	-354,000
Preconstruction Engineering and Design	5,769,000	9,813,000	+4,044,000
Construction, General			
Construction	163,452,000 1/	127,182,000 2/	-36,270,000
Operation and Maintenance, General			
Project Operation and Maintenance	208,100,000	204,213,000	-3,887,000
Total	380,834,000	344,367,000	-36,467,000

1/ Includes $10,808,000 derived from the Inland Waterways Trust Fund.

2/ Includes $2,750,000 derived from the Inland Waterways Trust Fund.

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

1. SURVEYS - NEW: None.

2. SURVEYS - CONTINUING

a. Navigation Studies: The amount of $567,000 is requested for completion of three reconnaissance phase studies and initiation of two feasibility phase studies during Fiscal Year 1991. The amount of $150,000 is requested for completion of the reconnaissance phase and initiation of the feasibility phase on one study during Fiscal Year 1991.

Alabama

Chickasaw Creek	75,000	0	45,000	30,000	0

The study area is the segment of the Mobile Harbor Project that extends from US Highway 90 Bridge to and up Chickasaw Creek to a point 400 feet south of Shell Bayou, a distance of approximately 3.0 miles. Authorized channel dimensions are widths of 500 feet in the Mobile River, 250 feet in Chickasaw Creek, and a depth of 25 feet throughout which is insufficient, primarily for crude oil tankers. These vessels currently are lightered from the Mobile River at an estimated annual cost to the shippers of $1,000,000. In 1981, under a permit issued by the Mobile District, the project was dredged to 35 feet by local interests who desire that the authorized project be reevaluated to determine the maximum feasible depth. The tentative non-Federal sponsor is the Alabama State Docks Department. An initial appraisal under Section 216 of the Flood Control Act of 1970 is currently underway to determine if there is a Federal interest in conducting a feasibility study for modification of the authorized project. The initial appraisal is scheduled for completion in February 1990.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase in April 1991.

Florida

Palm Valley Bridge	400,000	75,000	25,000	200,000	100,000

The study involves a Federal bascule bridge over the Intracoastal Waterway (IWW) on State Road 210 in St. Johns County, Florida. The bridge is part of the existing IWW project and is located in Palm Valley, about 11 miles south of Jacksonville Beach. The bridge is maintained at Federal expense, and serves vehicular traffic using a two-lane

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

a. Navigation Studies: Palm Valley Bridge (cont'd)

paved secondary road that is a major hurricane evacuation route. The County is concerned that the structural constraints of the bridge, compounded by growth projections, makes this structure inadequate for current and projected usage. This bridge is situated in an area that could experience a major disaster due to storms and hurricane conditions. The risk and uncertainty of an outdated bridge that cannot handle current or future traffic demands poses a grave threat to public health and welfare. The County believes that the bridge has outlived its economic life and that a new structure should be provided to support traffic demands. The County has indicated a willingness to assume ownership and future maintenance of a replacement bridge.

Fiscal Year 1990 funds are being used to fully fund the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to initiate the feasibility phase of the study at full Federal expense. The preliminary estimated cost of the feasibility phase is $400,000.

The reconnaissance phase is scheduled for completion in June 1990. The feasibility study is scheduled for completion in September 1992.

Tampa Harbor, Alafia River and Big Bend Channels	250,000	0	100,000	100,000	50,000

This study area is located in central Florida on the west coast. This harbor is among the nation's leading exporters of phosphate rock and chemicals. The main Federal ship channel in Tampa Harbor is 43 feet in depth. The Alafia River empties into the Hillsborough Bay portion of Tampa Harbor, and a Federal channel exists between the mouth of the river and the main ship channel with a depth of 30 feet and bottom width of 200 feet. The Big Bend Channel, dredged by local interests to a depth of 35 feet, connects the Tampa Harbor main ship channel to terminals at Big Bend on the shoreline of the harbor. The channel supports bulk shipments of coal and bulk movements of phosphate rock from the Big Bend terminal. Local interests are seeking Federal maintenance of the existing Big Bend channel. The Tampa Port Authority would be the local sponsor, and is aware of study cost sharing requirements.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
a. Navigation Studies: Tampa Harbor, Alafia River and Big Bend Channels (cont'd)					

Fiscal Year 1990 funds are being used to fully fund the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $300,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$400,000
Reconnaissance Phase (Federal)	100,000
Feasibility Phase (Federal)	150,000
Feasibility Phase (Non-Federal)	150,000

The reconnaissance phase is scheduled for completion in January 1991. The feasibility study is scheduled for completion in September 1992.

Georgia

Savannah Harbor Extension	700,000	0	181,000	150,000	369,000

Savannah Harbor is located in Chatham County, Georgia, on the South Atlantic Coast, 75 miles south of Charleston Harbor, South Carolina. The harbor is comprised of the lower 21.3 miles of the Savannah River and 11.2 miles of bar channel in the Atlantic Ocean. Savannah Harbor is one of the fastest growing ports for containerized shipping in the Nation. The Georgia Ports Authority has recently purchased a large tract of land upstream of the presently authorized harbor limit and is proceeding with plans to develop a total intermodal container port. The port authority has requested that a study be conducted to determine the feasibility of extending the harbor upstream. The Georgia Ports Authority is the potential local sponsor. They understand feasibility phase cost sharing and have indicated a willingness to participate.

a. Navigation Studies: Savannah Harbor Extension (cont'd)

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase. Funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase and initiate the feasibility phase of the study upon agreement by the local sponsor to share 50 percent of the costs of the feasibility phase. The preliminary estimated cost of the feasibility phase is $800,000. Up to one-half of the non-Federal share may be in-kind service. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$1,100,000
Reconnaissance Phase (Federal)	300,000
Feasibility Phase (Federal)	400,000
Feasibility Phase (Non-Federal)	400,000

The reconnaissance phase is scheduled for completion in February 1991. The feasibility study is scheduled for completion in February 1994.

North Carolina

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Cape Fear - Northeast (Cape Fear) River	250,000	0	90,000	160,000	0

The study area consists of commercial navigation channels extending from the Atlantic Ocean, through the ocean bar up to the North Carolina State Ports Authority terminal near the Cape Fear Memorial Bridge at Wilmington, a distance of 27 miles. From the Cape Fear Memorial Bridge, the navigation projects extend up the Cape Fear River to Fayetteville, a distance of 111 miles, and up the Northeast (Cape Fear) River to Kornegays Bridge, a distance of 103 miles. Commercial navigation interests have requested several improvements to the projects near Wilmington and between the Atlantic Ocean and the North Carolina State Ports Authority terminal. The increasing size of ships operating in the harbor has stimulated interest in widening and deepening various parts of the projects. Major shipping companies desire a deeper main channel from the Atlantic Ocean to the North Carolina State Ports Authority terminal.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

a. Navigation Studies: Cape Fear - Northeast (Cape Fear) River (cont'd)

Requests have been received from three industries interested in deepening the existing channel upstream of the Cape Fear Memorial Bridge. Local and state interests have also expressed a desire to deepen the channel from the ocean to the Cape Fear Memorial bridge from 38 feet to at least 40 feet. The major shipping companies can benefit from deeper channels that allow loading various types of ships to a greater draft. Increasing the draft of ships will result in significant benefits to commercial navigation. The study is supported by the State of North Carolina Division of Water Resources, and the North Carolina State Ports Authority. The study will determine the feasibility of channel improvements in support of commercial navigation utilizing the Cape Fear and Northeast (Cape Fear) Rivers.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase in May 1991.

Puerto Rico

Guayanes, Las Mareas and Guayanilla Harbors	135,000	0	58,000	77,000	0

Guayanilla and Las Mareas Harbors are on the south coast of Puerto Rico. Guayanes Harbor is on the east coast near Yabucoa. Las Mareas and Guayanes are man-made harbors for which the Puerto Rico Ports Authority has requested Federal maintenance to enable continued commercial use by deep draft vessels. Guayanilla is a natural harbor being used by commercial deep draft vessels. Commercial navigation is a critical component of the economic viability of the Commonwealth as a whole. To maintain commercial navigation, the Puerto Rico Ports Authority requests maintenance of existing channels and possibly improvements for better navigation.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase in July 1991.

Total, Navigation	1,810,000	75,000	499,000	717,000	519,000

b. Flood Damage Prevention Studies: The amount of $1,662,000 is requested for completion of two reconnaissance phase studies, continuation of four feasibility phase studies, and the completion of three feasibility phase studies during Fiscal Year 1991. The amount of $80,000 is requested for completion of the reconnaissance phase and the initiation of the feasibility phase on one study during Fiscal Year 1991.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Alabama					
Valley Creek, Warrior River and Tributaries	721,000	567,000	90,000	64,000	0

Valley Creek is located in north central Alabama and has a drainage area of 255 square miles. The stream forms in the city of Birmingham and flows southwesterly through the cities of Midfield, Roosevelt, Brighton, and Bessemer before emptying into the Black Warrior River. In the upper 18 miles of the creek, there are approximately 3,200 structures in the floodplain, the majority of which are residential. A flood on 2 December 1983 caused more than $5,000,000 in damages along the creek. Reconnaissance studies were conducted and found average annual flood damages along Valley Creek of $4,860,000. Flood control alternatives will be developed and investigations conducted to determine what improvements could be recommended to reduce flooding along Valley Creek.

Fiscal Year 1990 funds are being used to continue the feasibility phase. Fiscal Year 1991 funds will be used to complete the feasibility phase of the study. The estimated cost for the feasibility phase is $872,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,157,000
Reconnaissance Phase (Federal)	285,000
Feasibility Phase (Federal)	436,000
Feasibility Phase (Non-Federal)	436,000

The reconnaissance phase was completed in January 1988. The feasibility study is scheduled for completion in September 1991.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Damage Prevention Studies: (cont'd)					
Florida					
Coast of Florida Erosion and Storm Effects Study	8,230,000	698,000	642,000	750,000	6,140,000

The Coast of Florida Erosion and Storm Effects Study includes the entire Florida coastline consisting of five major coastal regions. The east coast region from the Florida-Georgia state line to the Florida Keys, a distance of more than 500 miles, is divided into three regions, the northeast, east, and southeast regions. The shoreline consists of a series of sandy barrier islands broken by inlets. The peninsular Gulf Coast region from Key West, Florida, north to the Tampa-St. Petersburg, Florida area is also composed of offshore barrier islands. The Panhandle Gulf Coast region extending from the Tampa-St. Petersburg area to the Alabama state line consists of sandy beaches backed by dune lines with heights ranging from 10 to 15 feet. The National Shoreline Study identified 543 miles of Florida's shoreline as having storm damage problems. Causes of the damage include storms, urban development, and rising sea level. The Florida population of 11.7 million is expected to increase to 32 million by the year 2020 with concentrated increases in the coastal and barrier islands areas. The study efforts will be directed toward achieving the overall goal of identifying, quantifying, documenting, and understanding coastal changes and processes. The study will evaluate the existing Federal projects including harbors, inlets, and beach erosion control projects on a regional basis to determine whether modifications are warranted and provide a better understanding of coastal processes. The study will produce a comprehensive body of information on which to base formulation, design, operation and maintenance of coastal and urban flood protection measures, and management plans. The feasibility study has been undertaken as a series of five regional feasibility reports. The first region being studied is the southeast coast.

Fiscal Year 1990 funds are being used to continue the feasibility phase for the southeast coast. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase of the study. The estimated cost for the feasibility phase is $15,800,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$16,130,000
Reconnaissance Phase (Federal)	330,000
Feasibility Phase (Federal)	7,900,000
Feasibility Phase (Non-Federal)	7,900,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: Coast of Florida Erosion and Storm Effects (cont'd)

The reconnaissance phase was completed in June 1988. The feasibility study for the southeast coast is scheduled for completion in June 1993. The feasibility study for the last of the five regions is scheduled for completion in 2001.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Frog Pond	175,000	0	77,000	98,000	0

The Frog Pond Agricultural Area consists of about 8 square miles (5,000 acres) in South Dade County, approximately four miles west of Homestead, Florida. The area is bounded on the south by Florida Highway 27, on the east by Canal 111, on the north by Levee 31 West, and on the west by Levee 31-W and the the Everglades National Park. The area now is over 80% cultivated and is used for the production of row crops, especially tomatoes during the winter growing season, which is October through May. The unique location adjacent to the Everglades National Park highlights the diverse interest between flood control and environmental enhancement. Currently, water resource management in this area is based on restoring natural flow patterns in the Everglades without damaging agricultural interests located on the fringe. Agricultural interests require a relatively low stage in Levee 31-W borrow canal, to drain low agricultural area as opposed to the Everglades National Park which desires a relatively high stage to promote overflow. Agricultural interests desire a stage of 3.5 ft. m.s.l. by October 15 each year to favorably market row crops, while the Park desires a stage of 4.0 to 5.0 ft. m.s.l. The Frog Pond agricultural area is located within the area of the Central and Southern Florida C-111 Project and is an important element of the C-111 economic justification. The Frog Pond study would analyze in detail the need for an internal drainage system. The local sponsor is South Florida Water Management District.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase of the study in June 1991.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Hillsboro Canal	630,000	275,000	171,000	150,000	34,000

The Hillsboro Canal is a major outlet for the Central & Southern Florida (C&SF) Flood Control Project in the Palm Beach-Broward County area. It provides significant flood control benefits in the lower reaches as well as significant water regulation capability for Water Conservation Areas 1 and 2A. Rapid and extensive development of the lower southeast coast of Florida has placed an increased demand on the C&SF project. A significant flood problem

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: Hillsboro Canal (cont'd)

still exists in the lower end of the canal area for which local interests have requested assistance. Also, assistance has been requested in evaluating the water conveyance capabilities of the canal to improve overall operation of the C&SF project. The South Florida Water Management District, the local sponsor for the C&SF project, will serve as local sponsor for this study.

Fiscal Year 1990 funds will be used to initiate the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $710,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$985,000
Reconnaissance Phase (Federal)	275,000
Feasibility Phase (Federal)	355,000
Feasibility Phase (Non-Federal)	355,000

The reconnaissance report was completed in July 1989. The feasibility study is scheduled for completion in June 1992.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Lower Hillsborough River and Curiosity Creek	550,000	0	160,000	80,000	310,000

The study area is located in the lower portion of the Hillsborough River which passes through the city of Tampa. The Hillsborough River is located in the west central portion of Florida, draining about 690 square miles originating just north of Lakeland and flowing southwesterly about 54 miles to empty into Hillsborough Bay at the north end of Tampa Bay. The primary area of concern along the lower river is that portion which lies within the Tampa city limits. Curiosity Creek drains about four square miles, all within the Hillsborough River Basin. From the headwaters in Hillsborough County, the stream flows south to a sink area, then drains underground to the Hillsborough River. The most significant water resources development problems in the lower Hillsborough River area result from the prolonged deposition of sediments. These sediments restrict flow, limit recreational use, and impair water quality. An improvement in stream flow would reduce river stages during flood events and thereby lessen the risk of flooding.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: Lower Hillsborough River and Curiosity Creek (cont'd)

In the Curiosity Creek watershed, the concern is for reducing flood levels along the stream, particularly at the lower end. Flooding occurred in 1959, 1960, 1979, and 1982, causing damage to property and forcing hundreds of people to evacuate their homes. Preliminary studies indicate as many as 500 homes and businesses may be located within the 100-year flood plain. The average annual damages are $1.26 million and damages during a 100 year flood are expected to be nearly $6.5 million. The principal purposes of the study are to provide a delineation of the sedimentation problem being experienced in the Lower Hillsborough River, a quantification of the damages occurring along Curiosity Creek, and analysis of alternative solutions to both these problems.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase and initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $750,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$925,000
Reconnaissance Phase (Federal)	175,000
Feasibility Phase (Federal)	375,000
Feasibility Phase (Non-Federal)	375,000

The reconnaissance phase is scheduled for completion in November 1990. The feasibility study is scheduled for completion in September 1994.

Georgia					
Savannah River Basin	736,000	463,000	50,000	123,000	100,000

The Savannah River Basin comprises about 11,000 square miles in Georgia, South Carolina, and North Carolina. The basin extends from the Blue Ridge Mountains in North Carolina to the Atlantic Ocean at Savannah, Georgia. The area is predominately rural with scattered urban and industrial areas. Industrial and domestic expansion in and adjacent

b. Flood Damage Prevention Studies: Savannah River Basin (cont'd)

to the basin is generating greater needs for flood control, commercial navigation, industrial and domestic water supply, recreation, fish and wildlife enhancement, hydroelectric power, and other related water uses. Reconnaissance level studies were completed in Fiscal Year 1987. These studies assessed various basin-wide water resources needs. However, at the time, only two areas were found to have feasible solutions suitable for Federal involvement. One was a flood damage prevention study for Rocky Creek, Richmond County, Georgia, which was recommended to be conducted under the Continuing Authorities Program. The other study was for improvements to the lower 40 miles of the Inland Navigation system of the Savannah River Below Augusta Project. During the search for a study sponsor, new problems surfaced in the management and use of the allocated storages of the three Savannah River Basin reservoirs; J. Strom Thurmond, Richard B. Russell, and Hartwell. The effects of the prolonged drought of the 1980's became apparent, raising questions of whether the present storage allocations to hydropower and flood control and some limited water supply were the needed allocations for the 1990's. Accordingly, the basin reconnaissance study is being reoriented and revised to determine the advisability of reallocation of storage to additional purposes of recreation, water supply, and to provide for additional downstream releases during future droughts.

Fiscal Year 1990 funds are being used to initiate the feasibility phase. The funds requested for Fiscal Year 1991 will be used to complete the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $547,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$1,010,000
Reconnaissance Phase (Federal)	463,000
Feasibility Phase (Federal)	273,000
Feasibility Phase (Non-Federal)	274,000

The reconnaissance phase is scheduled for completion in June of 1990. The feasibility phase is scheduled for completion in September 1992.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Damage Prevention Studies: (cont'd)					
Mississippi					
Pascagoula River Basin	2,610,000	2,135,000	0	130,000	345,000

The Pascagoula River Basin comprises most of southeastern Mississippi and a small part of southwestern Alabama. Studies were terminated in 1987 at the request of the local sponsor. Due to continued growth in the area, the Pat Harrison Waterway District has requested that studies be resumed to review the water resources problems. The study will address flood control projects on the Bowie and Tallahala Creeks, navigation on the main stem of the Pascagoula River, and flood warning and response planning for the Escatawpa and Chickasawhay Rivers. Analysis of the request indicates there is a high probability that a new study would produce high priority outputs such as a basin wide flood warning system and a flood control project on the Bowie River, at Rawls Springs.

Fiscal Year 1991 funds will be used to execute a Feasibility Cost Sharing Agreement and initiate economic and engineering studies. The preliminary estimated cost for the feasibility phase is $2,610,000, of which $2,135,000 was previously expended at full Federal expense. The remaining study costs are to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$3,085,000
Feasibility Phase (Federal)	2,610,000
Feasibility Phase (Non-Federal)	475,000

The feasibility study is scheduled for completion in September 1993.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Damage Prevention Studies: (cont'd)					
North Carolina					
Eastern North Carolina Above Cape Lookout	1,602,000	1,264,000	223,000	115,000	0

The 5,800 square mile study area includes 17 counties surrounding Pamlico and Albemarle Sounds, six ocean inlets, and a large segment of the Atlantic Intracoastal Waterway which bisects the study area. Three major rivers (the Roanoke, Pamlico, and Neuse) and numerous smaller tributaries empty into the Sounds. More than half of the study area is subject to flooding from wind tides and local runoff. Flood damages were $6,600,000 from Hurricane Hazel in 1954 and $37,400,000 from Hurricanes Connie, Diane and Ione in 1955. Earlier studies considered the feasibility of flood control measures, determined irrigation water needs, and inventoried surface and ground water supplies. In recent years, vast forested areas have been cleared, thereby, creating the potential for adverse impacts on the biological productivity of the Sounds. The State of North Carolina has become increasingly concerned over water resources problems developing in the study area and has devoted an increasing share of its resources to research and planning efforts in the area. In a letter, dated 4 May 1983, the State of North Carolina requested that this study be reactivated with the objective of developing a comprehensive water resources development plan for the region's water and related land resources. Investigations are being directed primarily in the areas of flood control, water quality, water supply, and fish and wildlife habitat. These areas of consideration have been identified by the State as needing immediate attention.

Fiscal Year 1990 funds are being used to complete preliminary studies at Washington and Lowland and to initiate preliminary studies at several other flood-prone communities. Fiscal Year 1991 funds will be used to complete preliminary studies for flood-prone communities and to prepare the final study report. The report of the Division Engineer for the overall study is scheduled for completion in September 1991.

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Damage Prevention Studies: (cont'd)					
Wrightsville Beach - North Portion	200,000	0	68,000	132,000	0

Wrightsville Beach is located on the Atlantic Ocean in New Hanover County about 10 miles east of Wilmington, NC. The study area encompasses the northern portion of the ocean shoreline adjacent to the authorized shore protection project. The report on a hurricane protection study of Wrightsville Beach, NC (House Document No. 511-87-2) transmitted to Congress in August 1962 recommended the authorized and completed berm and dune project at Wrightsville Beach. This project extends from Masonboro Inlet to the northern town limit, a distance of approximately 14,000 feet. Since completion of the project, the northern town limit has been extended approximately 2,800 feet which has prompted the request by local interests for an extension of the berm and dune project. Local interests would like to solve the erosion problems and prevent potential damage due to hurricane induced surges. Northeasters have already caused some land loss and threatened new structures along the northern 2,800 feet of town ocean shoreline (Shell Island). The study will determine the feasibility of providing flood damage prevention to the northern portion of Wrightsville Beach. The town of Wrightsville Beach is the likely local sponsor.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase of the study. Fiscal Year 1991 funds will be used to complete the reconnaissance phase. The reconnaissance report is scheduled for completion in May 1991.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Puerto Rico					
Rio Nigua at Salinas	445,000	100,000	129,000	100,000	116,000

The basin of the Rio Nigua at Salinas, located in southern Puerto Rico, has a drainage area of about 52.6 square miles. It has two main tributaries: Rio Majada with a drainage area of 22.2 square miles, and Rio Lapa with a catchment of 12.1 square miles. These rivers join at a point approximately five miles upstream of the town of Salinas. Rio Nigua's drainage area is bounded by abrupt mountains at its headwaters and has a coastal plain for the first six miles upstream from its mouth. The steep slopes and high impermeability of the terrain in the upper part of the basin produce fast runoff velocities of the surface waters and allow minimal infiltration. The most recent flood occurred in October 1985, resulting from the movement of a tropical depression over the island. This flood resulted in the loss of two lives, damages amounting to more than $2 million dollars and destruction of dozens of

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: Rio Nigua at Salinas (cont'd)

houses in the vicinity of Salinas. Approximately 400 acres of land are flooded by the 100-year flood in the Salinas area, of which 250 acres are urbanized. Some 550 housing units, many commercial buildings and a public hospital are within the floodable area. The most relevant and feasible measures for solving the flooding problems in the study area appear to be those relating to flood plain land use controls, levees, flood walls, and channel improvements. The Puerto Rico Department of Natural Resources would be the local sponsor. They have identified Rio Nigua at Salinas as an area of major concern.

Fiscal Year 1990 funds are being used to initiate the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $690,000, which is to be cost shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$790,000
Reconnaissance Phase (Federal)	100,000
Feasibility Phase (Federal)	345,000
Feasibility Phase (Non-Federal)	345,000

The reconnaissance phase is scheduled for completion in June 1990. The feasibility study is scheduled for completion in September 1993.

Total, Flood Damage Prevention Studies	15,899,000	5,502,000	1,610,000	1,742,000	7,045,000

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

c. Shoreline Protection Studies: The amount of $700,000 is requested for the initiation of one and the continuation of one feasibility phase study during Fiscal Year 1991.

Georgia					
Glynn County Beaches	800,000	0	100,000	400,000	300,000

The Glynn County Beaches are comprised of the shoreline areas of Jekyll, St. Simons, and Sea Islands, all of which are located in Glynn County, on the southeastern coast of the State of Georgia. All three Glynn County islands are extensively developed with both commercial and residential areas. These areas are subject to damages by coastal flooding and shoreline erosion from major winter storms and hurricanes. Information based on increased knowledge of coastal processes now strongly indicate that the three islands are acting as one littoral system, and that any protective measures considered for one island would most likely impact the other islands. Much of the existing shoreline consists of hardened structures. The study will determine the feasibility of providing solutions to the coastal flooding and shoreline erosion problems. The local sponsor would be the Glynn County Commission.

Fiscal Year 1990 funds are being used to fully fund the reconnaissance phase. The funds requested for Fiscal Year 1991 will be used to initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,400,000. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,500,000
Reconnaissance Phase (Federal)	100,000
Feasibility Phase (Federal)	700,000
Feasibility Phase (Non-Federal)	700,000

The reconnaissance phase is scheduled for completion in August 1990. The feasibility study is scheduled for completion in October 1993.

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
c. Shoreline Protection Studies: (cont'd)					
South Carolina					
South Carolina Shores	1,407,000	250,000	257,000	300,000	600,000

The State of South Carolina acting through the Coastal Council desires assistance in reducing the threat of damage from storms and hurricanes. Several coastal communities currently experience severe erosion from such storms. The initial effort under this study was to examine the threat of storm damage to Hilton Head Island. The community's problem is so severe that they have already collected data that may be useful to our study. The mayor of Hilton Head and other local officials have requested our participation in this study. The South Carolina Coastal Council is the potential local sponsor.

Fiscal Year 1990 funds are being used to complete the reconnaissance phase at full Federal expense and initiate the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,800,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$2,307,000
Reconnaissance Phase (Federal)	507,000
Feasibility Phase (Federal)	900,000
Feasibility Phase (Non-Federal)	900,000

The reconnaissance phase is scheduled for completion in April 1990. The feasibility phase is scheduled for completion in September 1993.

Total, Shoreline Protection Studies	2,207,000	250,000	357,000	700,000	900,000

d. Special Studies: None

e. Comprehensive Basin Studies: None

f. Project Review Studies: None

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
TOTAL SURVEYS - CONTINUING	19,916,000	5,827,000	2,466,000	3,159,000	8,464,000
TOTAL SURVEYS	19,916,000	5,827,000	2,466,000	3,159,000	8,464,000

3. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - NEW

a. Navigation Studies: The amount of $610,000 is requested to initiate two PED activities in Fiscal Year 1991.

Mississippi

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Escatawpa River, Jackson County	470,000	0	0	150,000	320,000

Escatawpa River is located in Jackson County, Mississippi, and flows into the Pascagoula River just above the city of Pascagoula. Local interests desire deepening the navigation channel in the Escatawpa River. Primary users of a deeper channel would be shipbuilding and ship repair yards and commercial fishing fleets. The feasibility study is scheduled for completion with issuance of the Division Engineer's Public notice in November 1990. The plan which appears to maximize NED benefits provides for deepening the existing channel from 12 feet to 18 feet at an estimated cost of $3,840,000. The estimated average annual benefits are $381,000, all for navigation. The benefit cost ratio is 1.1 to 1.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests will be required to provide lands, easements, rights-of-way, and dredged material disposal areas, presently estimated at $783,000; pay a cash contribution during construction which equals 10 percent of the cost allocated to shallow draft navigation, presently estimated at $300,000; and pay an additional 10 percent of the costs allocated to shallow draft navigation within a period not to exceed 30 years following completion (totally offset by a credit for lands, easements, rights-of-way, and dredged material disposal areas).

Fiscal Year 1991 funds will be utilized to initiate the General Design Memorandum. Preconstruction engineering and design is scheduled for completion in September 1993.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
a. Navigation Studies: (cont'd)					
North Carolina					
Morehead City Harbor	840,000	0	0	460,000	380,000

Morehead City Harbor is a deep draft, Federal navigation project in Carteret County midway along the North Carolina coast about 10 miles northwest of Cape Lookout. The authorized and constructed project consists of an ocean bar channel 42 feet deep and 450 feet wide, a cutoff channel 40 feet deep and 600 feet wide; an inner channel 40 feet deep and 400 feet wide; a harbor with the east leg of the turning basin being 40 feet deep, including a turning area 1,200 feet in diameter, and the west leg being 35 feet deep. The port handles phosphate rock, fertilizer, chemicals, petroleum products, sulfur, coal and general cargo. Recent increases in use of the port by deeper draft vessels and proposed use of the port facility indicate that a deeper project is warranted. Strong interest has been expressed by shippers and the State Ports Authority in deepening the existing navigation project to handle bulk carriers which draw 45 feet of water fully laden. The feasibility report is expected to recommend implementation of a Federal project which will include harbor deepening, channel widening, and enlarging the limits of the existing Federal project. The recommended project is estimated to cost $14,000,000. The average annual benefits amount to $3,300,000, all for commercial navigation. The benefit cost ratio is 1.8 to 1.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests must pay 25 percent of the cost of construction of the general navigation portion which has a depth in excess of 20 feet but not in excess of 45 feet, presently estimated at $3,000,000; pay an additional 10 percent of the cost of the general navigation features of the project in cash over a period not to exceed 30 years, presently estimated at $1,200,000 (with credit for the value of lands, easements, rights-of-way, relocations and dredged material disposal areas); provide depths in berthing areas commensurate with project depths, presently estimated at $140,000; and provide bulkhead modifications, presently estimated at $2,460,000.

Fiscal Year 1991 funds will be used to initiate preconstruction engineering and design, scheduled for completion in December 1992.

Total Navigation Studies	1,310,000	0	0	610,000	700,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Control: None

c. Shoreline Protection: None

d. Multiple Purpose Power: The amount of $300,000 is requested to initiate one PED activity in Fiscal Year 1991.

Georgia

Richard B. Russell Dam and Lake, Fish and Wildlife Mitigation	850,000	0	0	300,000	550,000

The construction of the Richard B. Russell Dam and Lake project has inundated 28 miles of the Savannah River, including 9 miles of trout waters and 26,650 acres of productive wildlife lands. Wildlife resources will be largely eliminated on an additional 12,447 acres of land adjacent to the pool where authorized recreation areas are being sited. This fish and wildlife mitigation project will include acquisition, development, and management for wildlife purposes of about 11,400 acres in Georgia at the South Amicalola site in Dawson County and about 10,100 acres in South Carolina at the Millbury site in Allendale County. In addition, certain tracts of Federally owned land around the Corps of Engineers Clarks Hill Lake will be intensively managed for wildlife purposes.

The project is authorized for construction by the Water Resources Development Act of 1986 at a total cost of $20,200,000 with an estimated first Federal cost of $20,150,000 and an estimated first non-Federal cost of $50,000.

Fiscal Year 1991 funds will be used to initiate preparation of a Feature Design Memorandum for mitigation. The memorandum will identify lands to be acquired, develop a wildlife management plan, costs, schedules, sponsors, and drafts of Local Cooperation Agreements. Preconstruction engineering and design is scheduled for completion in September 1993.

Total Multiple Purpose Power	850,000	0	0	300,000	550,000
TOTAL - PED - NEW	2,160,000	0	0	910,000	1,250,000

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4. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - CONTINUING

a. Navigation: The amount of $3,668,000 is requested to continue six PED activities and complete three PED activities in Fiscal Year 1991.

Alabama

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Bayou La Batre	680,000	121,000	212,000	347,000	0

Bayou La Batre is a tidal stream about 10 miles long which empties into Mississippi Sound about 30 miles southwest of Mobile, Alabama. The existing Federal navigation project completed in March 1967, provides a 12 by 100-foot channel from the 12-foot contour in Mississippi Sound to a turning basin about 2,800 feet below the Alabama Highway 188 bridge, and a 12 by 75 foot channel from the turning basin to the Highway 188 bridge. The overall length of the existing channel is about 6.3 miles. A feasibility study, completed September 1988, recommended deepening the existing channel in the Mississippi Sound to the turning basin to 18 feet, extending the 14 by 75-foot channel from the turning basin to 1,500 feet upstream of the Highway 188 Bridge, and providing a channel into Snake Bayou. The recommended improvements are estimated to cost $17,519,000. The average annual benefits amount to $5,916,000, all from navigation. The benefit cost ratio is 3.1 to 1.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests will be required to provide lands, easements, relocations, bulkhead replacements, rights-of-way, and dredged material disposal areas, presently estimated at $12,160,000; pay a cash contribution during construction which equals 10 percent of the cost allocated to shallow draft navigation, presently estimated at $531,000; and pay an additional 10 percent of the costs allocated to shallow draft navigation within a period not to exceed 30 years following completion (totally offset by a credit for lands, easements, rights-of-way, and dredged material disposal areas).

Fiscal Year 1990 funds are being used to continue General Design Memorandum investigations. Fiscal Year 1991 funds will be used to complete the General Design Memorandum and construction plans and specifications. Preconstruction engineering and design is scheduled for completion in September 1991.

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
a. Navigation: (cont'd)					
Florida					
Canaveral Harbor	700,000	0	30,000	400,000	270,000

Canaveral Harbor is a major port for central Florida. The port handles petroleum products, scrap metal, and building cement. The average annual tonnage from 1980 through 1985 has been approximately 2.5 million tons. Vessels now using the harbor are larger than those anticipated in previous studies on which the current project authorizations in the entrance and inner channels, as well as turning basins, are based. The feasibility study is underway and is considering incremental deepening as well as widening the inner channel to the middle basin. The feasibility study is scheduled for completion in July 1990. The total estimated project cost of deepening to 39 feet in the middle basin and 40 feet in the inner channel with 100-foot widening of the inner channel is $9,410,000. The average annual benefits amount to $1,682,000. The benefit cost ratio is 2.0 to 1.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests will be required to pay 50 percent of the recreation feature of the project, presently estimated at $505,000; provide berthing areas, presently estimated at $500,000; pay a cash contribution during construction which equals 25 percent of the cost allocated to navigation, presently estimated at $1,822,000; and pay an additional 10 percent of the cost allocated to navigation within a period not to exceed 30 years following project completion, presently estimated at $729,000. Non-Federal maintenance, all for recreation, is presently estimated at $56,000 annually.

Fiscal Year 1990 funds are being used to initiate the General Design Memorandum. Fiscal Year 1991 funds will be used to continue General Design Memorandum investigations. Preconstruction engineering and design is scheduled for completion in September 1992.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
a. Navigation: (cont'd)					
Canaveral Harbor Sand Transfer	500,000	0	85,000	415,000	0

Canaveral Harbor is a major port located on the central east coast of Florida. The entrance channel is bordered by two rock jetties to protect the channel. The Canaveral Harbor Sand Transfer System would provide for the southward movement of sand to by-pass the harbor entrance and thereby reduce erosion of the shoreline south of the port and associated maintenance dredging of the port entrance channel. Additionally, extension of the south jetty a distance of 500 feet with sand tightening of the entire structure would also reduce erosion and channel maintenance dredging by intercepting northward moving material. The total estimated project cost is $5,450,000. The benefit cost ratio is 4.0 to 1.

The project was authorized for construction by the Rivers and Harbors Act of 1962 and Section 101(c) of the Water Resources Development Act of 1986 with the following cost sharing requirements. Local interests will be required to provide lands, easements, rights-of-way and dredged material disposal areas, presently estimated to cost $90,000, and assume responsibility for operations and maintenance, presently estimated to be $200,000 annually.

Fiscal Year 1990 funds are being used to initiate the Feature Design Memorandum for the sand transfer system. Fiscal Year 1991 funds will be used to complete preconstruction engineering and design in September 1991.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Miami Harbor Channel	3,100,000	800,000	726,000	1,100,000	474,000

Miami Harbor is in Biscayne Bay, a shallow salt water sound on the Atlantic Coast near the southern end of the Florida peninsula. The Port is the largest cruise-ship terminal in the world as well as a major commercial harbor in Florida. Over 2.5 million passengers and 2.4 million tons of cargo passed through the harbor in 1986. Additionally, expansion of the port facilities has been occurring over the past several years. The recommended project provides for a 44-foot deep entrance channel, 42-foot deep interior channels, and a turning basin located at the Dodge-Lummus Island intersection. The estimated first cost of these improvements is $74,500,000. The average annual benefits amount to $9,479,000. The benefit cost ratio is 1.5 to 1.

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

a. Navigation: Miami Harbor Channel (cont'd)

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interest will be required to provide lands, easements, and rights-of-way, relocations, berthing area excavation, and dredged material disposal areas, presently estimated at $1,375,000; pay 25 percent of cost allocated to deep draft navigation during construction, presently estimated at $18,300,000 and pay an additional 10 percent of the costs allocated to deep draft navigation within a period of 30 years following project completion, presently estimated at $6,100,000 (partially offset by a credit for lands, easements, rights-of-way, relocations and dredged material disposal areas); and bear maintenance costs, presently estimated at $363,000 annually.

Fiscal Year 1990 funds are being used to continue geotechnical investigations, surveys, and modeling. The funds requested for Fiscal Year 1991 will be used to continue preconstruction engineering and design, scheduled for completion in December 1991.

Panama City Harbor	1,290,000	0	85,000	200,000	1,005,000

Panama City Harbor is a deep-draft port on St. Andrew Bay, with an entrance channel to the Gulf of Mexico, at Panama City, in northwest Florida. The existing project provides for a gulf approach channel 34 feet deep by 450 feet wide stabilized at the entrance by rubble mound jetties and a bay channel 32 feet deep by 300 feet wide. Project improvements, estimated to cost $8,449,000, were authorized in 1972 with resolutions by both US Senate and House of Representatives under the provisions of Section 201 of the 1965 Flood Control Act. They include: deepening the gulf approach channel to 42 feet and the bay channel to 40 feet, providing a 177 acre turning basin 40-foot deep in mid-bay for LASH vessels, and adding two 38 feet by 300 feet branch channels from the northern end of the new bay channel. Preconstruction planning was suspended in 1977 because: (1) the original plan for open water disposal of dredged material was no longer allowable and the sponsor could not locate suitable upland disposal areas, and (2) traffic had declined to below the economic justification level. In April 1986, The Panama City Port Authority, the non-Federal sponsor, requested that the Corps resume detailed design studies of the project with a view towards constructing some economical increment of the authorized modifications. The request resulted from recent increases in traffic calling at the port and developments in innovative disposal techniques, especially ocean dumping, which offer possible solutions to earlier disposal problems. An Initial Appraisal was completed 14 September 1988 which recommended continuing investigations to determine the optimum channel configuration. The average annual benefits amount to $1,326,000, all for navigation. The benefit cost ratio is 1.6 to 1.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
a. Navigation: Panama City Harbor (cont'd)					

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the sponsor will be required to provide lands, easements, rights-of-way, and dredged material disposal areas, presently estimated at $57,000; pay a cash contribution during construction which equals 25 percent of the cost allocated to navigation, presently estimated at $2,040,000; and pay an additional 10 percent of the costs allocated to navigation within a period not to exceed 30 years following completion (partially offset by a credit for lands, easements, rights-of-way, relocations and dredged material disposal areas).

Fiscal Year 1990 funds are being used to initiate General Design Memorandum investigations. Fiscal Year 1991 funds will be utilized to continue preconstruction engineering and design studies which are scheduled for completion in September 1993.

Georgia					
Brunswick Harbor	925,000	0	50,000	50,000	825,000

Brunswick Harbor is located in Glynn County, Georgia, about 75 miles south of Savannah. The Federal navigation project in Brunswick Harbor consists of approximately 13 miles of channel in St. Simons Sound, Brunswick River, and Turtle River; approximately two miles of channel in East River; and approximately eight miles of channel across the ocean bar. The State of Georgia Department of Transportation has recently made a commitment to replace the lift-span Lanier Bridge with a fixed span high level bridge. Recent marketing efforts by Georgia Ports Authority for additional bulk commodity shipments have provided additional information for consideration in the economic analysis. The channel deepening would occur on the inner harbor channels to terminal facilities on both East River and South Brunswick River. The total estimated project cost for channel deepening is $7,400,000. The average annual benefits amount to $833,000. The benefit to cost ratio for this improvement is 1.3 to 1.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests will be required to provide lands, easements, rights-of-way and dredged material disposal areas, presently estimated at $279,000; pay a cash contribution during construction which equals 25 percent of the cost allocated to navigation, presently estimated at $1,717,000; and pay an additional 10 percent of the cost allocated to navigation within a period not to exceed 30 years following project completion, presently estimated at $715,000 (may be offset by a credit for lands, easements, rights-of-way, and dredged material disposal areas).

a. Navigation: Brunswick Harbor (cont'd)

Fiscal Year 1990 funds are being utilized to complete the feasibility study. Fiscal Year 1991 funds will be used to initiate the General Design Memorandum. Preconstruction engineering and design is scheduled for completion in September 1993.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Savannah Harbor Comprehensive	825,000	0	129,000	50,000	646,000

The Savannah Harbor Comprehensive recommended plan of improvement will be modification of the existing Federally authorized Savannah Harbor, Georgia, project which consists of 21.3 miles of improved channel in the lower Savannah River and a 11.2 mile bar channel. The feasibility report is expected to recommend deepening the interior channel from 38 to 40 feet from the upper end of the Kings Island Turning Basin to the ocean end of the jetties and deepening the bar channel from 40 feet to 42 feet. Recent data from the Savannah Harbor Salinity Model have provided valuable information to be considered in order to address the impacts of deepening on the adjacent National Wildlife Refuge. The total estimated project cost of the deepening is $14,100,000 and average annual benefits amount to $1,623,000. The benefit cost ratio is 1.2 to 1.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests will be required to provide lands, easements, rights-of-way and dredged material disposal areas, presently estimated at $336,000; pay a cash contribution during construction which equals 25 percent of the cost allocated to navigation, presently estimated at $3,833,000; and pay an additional 10 percent of the cost allocated to navigation within a period not to exceed 30 years following project completion, presently estimated at $1,028,000 (may be offset by a credit for lands, easements, rights-of-way, and dredged material disposal areas).

Fiscal Year 1990 funds are being utilized to complete the feasibility study. Fiscal Year 1991 funds will be used to initiate the General Design Memorandum. Preconstruction engineering and design is scheduled for completion in September 1993.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
a. Navigation: (cont'd)					
North Carolina					
Wilmington Harbor - Northeast Cape Fear River	1,106,000	825,000	75,000	206,000	0

Wilmington Harbor is located at Wilmington on the southern coast of North Carolina in New Hanover and Brunswick Counties. The plan of improvement for the existing deep draft navigation project includes: widening the 38 by 400-foot Fourth East Jetty Channel (about 1.5 miles long) to 500 feet; deepening the 32 by 400-foot channel between Castle Street and the NC 133 Bridge (about 1.7 miles) to 35 feet; widening the 32 by 1,000 by 800-foot turning basin just above the mouth of the Northeast Cape Fear River by 50 feet on the west side at a depth of 35 feet; deepening the 32 by 300-foot channel between the NC 133 Bridge and the Hilton Railroad Bridge (about 0.5 miles) to 35 feet; deepening the 25 by 200-foot channel 750 feet above the Hilton Railroad Bridge to 35 feet; and environmental improvements to include acquiring, by easements or fee title, about 2,800 acres of wetlands, river bluffs, and ecotones and provision for a minimum number of specially designed corridors across the wetlands for industrial access to the river. The estimated project construction cost is $22,370,000 and the average annual benefits are $1,902,000, all for commercial navigation. The benefit cost ratio is 1.3 to 1.

The project is authorized for construction by the Water Resources Development Act of 1986 with the following cost-sharing requirements. Local interests are required to provide all lands, easements, rights-of-way, and dredged material disposal areas including necessary retaining dikes presently estimated at $920,000; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project, presently estimated at $8,850,000; pay 25 percent of the costs allocated to deep draft navigation during construction, presently estimated at $1,850,000; pay 25 percent of the first costs allocated to fish and wildlife enhancement, presently estimated at $1,270,000; and pay 25 percent of the first cost of operation, maintenance and replacement of fish and wildlife facilities, presently estimated at $14,000 annually.

Fiscal Year 1990 funds are being used to complete the General Design Memorandum and to initiate work on the plans and specifications. The funds requested for Fiscal Year 1991 will be used to complete preconstruction engineering and design in September 1991.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 South Atlantic Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
a. Navigation: (cont'd)					
Puerto Rico					
San Juan Harbor	2,000,000	0	428,000	900,000	672,000

The recommended plan of improvement for San Juan Harbor includes deepening the Bar Channel to 48 feet and shifting its alignment 350 feet to the west, deepening Anegado, Army Terminal and Puerto Nuevo channels to 40 feet, deepening the San Antonio, and Graving Dock Channels to 36 feet, and deepening Anchorage Area E to 38 feet while reducing its size and constructing six mooring dolphins within its limits. A 1,500-foot long extension to San Antonio Channel would be added to the Federal project and deepened to 36 feet. Sabana Approach would also be added to the Federal project and deepened to 32 feet. The project would include enlarged and deepened turning basins and wideners for safety and navigation and a plan to mitigate for adverse impacts on the existing algae beds. The proposed project construction cost is $91,200,000 and the average annual benefits amount to $55,219,000, all for commercial navigation. The benefit cost ratio is 6.8 to 1.

The project is authorized for construction by the Water Resources Development Act of 1986 with the following cost-sharing requirements. Local interests will be required to provide lands, easements, rights-of-way and dredged material disposal areas, presently estimated at $2,800,000; pay 25 percent of the cost allocated to deep draft navigation up to 45 feet and 50 percent of the costs allocated to deep draft navigation in excess of 45 feet, during construction, presently estimated at $23,000,000; pay an additional 10 percent of the costs allocated to deep draft navigation within a period of 30 years following completion, presently estimated at $9,200,000 (partially offset by a credit for lands, easements, rights-of-way, and dredged material disposal areas); and bear maintenance costs, presently estimated at $75,000 annually.

Fiscal Year 1990 funds will be used to initiate the General Design Memorandum, including geotechnical investigations, surveys, and ship simulator modeling. Fiscal Year 1991 funds will be used to continue these activities. Preconstruction engineering and design is scheduled for completion in September 1992.

Total, Navigation	11,126,000	1,746,000	1,820,000	3,668,000	3,892,000

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Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

b. Flood Control: The amount of $2,375,000 is requested to complete one PED activity and continue two PED activities in Fiscal Year 1991.

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
North Carolina					
Sugar Creek Basin	2,650,000	0	141,000	800,000	1,709,000

The Sugar Creek Basin covers approximately 270 miles and consists of many small basins ranging between one and sixty square miles. The city of Charlotte, NC, portions of Mecklenburg County, NC, and portions of Lancaster and York Counties, SC, are located within the basin. Sugar Creek drains into the Catawba River about seven miles southeast of Fort Mill, SC. The drainage basin is highly urbanized with the Charlotte Metropolitan Area covering the entire headwaters area. Flood plain land use is primarily medium to high density residential properties of medium value. There is also considerable commercial development with scattered industrial development. The study area has experienced damaging floods in the past. The average annual flood damages for the basin are estimated to be approximately $4,800,000. The recommended project includes about 7.3 miles of channel modification on Little Sugar Creek and Briar Creek and the evacuation of 168 structures from the flood plain, and is estimated to cost $38,900,000. The average annual benefits amount to $3,500,000, all for flood control. The benefit cost ratio is 1.2 to 1.

The project is authorized for construction by the Water Resources Development Act of 1986 with the following cost-sharing requirements. Local interests are required to provide all lands, easements, and rights-of-way, including suitable borrow and spoil disposal areas for structural flood control measures, presently estimated at $4,860,000; modify or relocate buildings, utilities, roads, and other facilities for structural flood control measures, presently estimated at $6,822,000; pay 5 percent of the total cost allocated to structural flood control measures during construction, presently estimated at $1,298,000; pay 25 percent of the total cost allocated to nonstructural flood control measures during construction, presently estimated at $3,220,000; and bear all costs of operation, maintenance, and replacement of flood control facilities, presently estimated at $143,000 annually.

Fiscal Year 1990 funds are being utilized to prepare a supplemental report showing that the recommended plan is the NED plan and to initiate preconstruction engineering and design. Fiscal Year 1991 funds will be used to continue preparation of the General Design Memorandum. Preconstruction engineering and design is scheduled for completion in July 1994.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Control: (cont'd)					
Puerto Rico					
Rio de la Plata	2,600,000	0	599,000	900,000	1,101,000

The Rio de la Plata basin drains an area of 241 square miles at a point 11 miles west of San Juan. This area includes all or part of the municipalities of Dorado, Toa Baja, Toa Alta, Camerio, Cedra, Cayey, Arbonito and Barranquitas. Heavy rainfall combines with very steep slopes to produce relatively high discharges in a short period of time. Flooding in the study area affects over 12,300 families and numerous public buildings and facilities. Average annual damages for existing conditions are estimated at $6,600,000. The recommended plan includes channel improvements from the mouth of the river to the vicinity of Toa Alta, levees adjacent to Highway 165 in the east and Highway 693 in the west, and ponding areas, culverts, and a pump station to deal with interior drainage of developed areas. The estimated first cost of this plan is $68,500,000 and the average annual benefits are $14,700,000, all for flood control. The benefit cost ratio is 2.4 to 1.

In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide all lands, easements, and rights-of-way, including suitable borrow and spoil disposal areas, modify or relocate buildings, utilities, roads, and other facilities presently estimated at $23,300,000; pay 5 percent of the total cost allocated to flood control measures during construction presently estimated at $3,400,000; and bear all costs of operation, maintenance, and replacement of flood control facilities presently estimated at $25,000 annually.

Fiscal Year 1990 funds are being used to initiate the General Design Memorandum, including geotechnical investigations, and surveys. Fiscal Year 1991 funds will be used to continue General Design Memorandum investigations. Preconstruction engineering and design is scheduled for completion in September 1992.

Rio Puerto Nuevo	6,000,000	4,025,000	1,300,000	675,000	0

The Rio Puerto Nuevo Basin drains an area of 24 square miles of northern Puerto Rico and empties into San Juan Harbor. Approximately 75 percent of the basin is highly developed and the remainder will be by the year 2000. The basin population of 250,000 includes about 20 percent of the metropolitan area. Flooding affects 5,700 families,

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Control: Rio Puerto Nuevo (cont'd)

large land and sea oriented transportation facilities, commercial facilities, and numerous public buildings. Quantifiable average annual equivalent damages under existing conditions exceed $20,000,000. The recommended plan of improvement includes 6.5 miles of channel improvement, a stilling basin just upstream of Quebrada Buena Vista, and two debris basins at the uppermost section of the project. The estimated project construction cost is $298,000,000 and the average annual benefits amount to $55,300,000, all for flood control. The benefit cost ratio is 2.0 to 1.

The project is authorized for construction by the Water Resources Development Act of 1986 with the following cost-sharing requirements. Local interests are required to provide all lands, easements, and rights-of-way, including suitable borrow and spoil disposal areas, modify or relocate buildings, utilities, roads, and other facilities, presently estimated at $79,500,000; pay 5 percent of the total cost allocated to flood control measures during construction, presently estimated at $14,900,000; and bear all costs of operation, maintenance, and replacement of flood control facilities, presently estimated at $250,000 annually.

Fiscal Year 1990 funds are being utilized to complete work on the General Design Memorandum and a Feature Design Memorandum. Fiscal Year 1991 funds will be used to complete preconstruction engineering and design in August 1991.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Total Flood Control	11,250,000	4,025,000	2,040,000	2,375,000	2,810,000

c. Shoreline Protection: The amount of $2,860,000 is requested to continue four PED activities during Fiscal Year 1991.

Florida

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
Panama City Beaches	3,680,000	839,000	513,000	800,000	1,528,000

The Panama City Beaches encompass an 18.5 reach of Florida Gulf shoreline extending from the west jetty at the Panama City Harbor entrance channel westward to Philips Inlet, near the Bay-Walton county line. This reach is heavily developed with a mixture of both resort and beach front residential structures. The beach has experienced steady shoreline and dune erosion, resulting in increased exposure and structural damages from increased water levels and waves caused by storms. The recommended plan, with an estimated first cost of $34,980,000 and estimated future

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

c. Shoreline Protection: Panama City Beaches (cont'd)

renourishments of $11,271,000, would provide a 155 foot wide protective beach fronting a 9 foot high dune with a 30 foot crest width. Average annual benefits are estimated at $5,218,000, of which $2,609,000 would result from prevention of structural damages and $2,609,000 from recreation use. The benefit cost ratio is 1.4 to 1.

The project is authorized for construction by the Water Resources Development Act of 1986 with the following cost sharing requirements. Local interests must provide all lands, easements, rights-of-way, relocations, disposal areas and borrow areas, presently estimated at $18,709,000; pay 35 percent of the first costs and future nourishment allocated to hurricane and storm damage reduction, presently estimated at $14,338,000 (partially offset by a credit for lands, easements, rights-of-way, relocations, disposal areas and borrow areas); and bear all costs of operation, maintenance, repair and replacement of hurricane storm damage reduction facilities, presently estimated at $587,000 annually.

Fiscal Year 1990 funds are being used to initiate a General Design Memorandum which will consist of engineering, economic, environmental, and real estate studies. Requested Fiscal Year 1991 funds will be used to continue preconstruction engineering and design. Preconstruction engineering and design is scheduled for completion in September 1993.

North Carolina

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
West Onslow Beach and New River Inlet	870,000	0	85,000	460,000	325,000

The study area is between New Topsail Inlet and Onslow Beach and is about 40 miles northeast of Wilmington, NC. Topsail Island is a barrier island on the central North Carolina coast and includes the communities of Topsail Beach, Surf City, and West Onslow Beach. The study investigated hurricane protection and storm damage reduction needs and concluded that the most practicable plan of protection for Topsail Island is a berm and dune project extending along approximately 3 miles of the oceanfront of Topsail Beach which is located on the southern end of Topsail Island. This is the only section of the 21.7 mile-long shoreline of Topsail Island where Federal improvements are economically justified. The development at Topsail Beach is more vulnerable than ever to hurricanes and storm damage. Along the southern 2 miles of Topsail Beach, erosion is progressing at a rate of about 4.5 feet per year, and several structures have already been lost to storm damage or relocated. The recommended plan of improvement

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

c. Shoreline Protection: West Onslow Beach and New River Inlet (cont'd)

consists of a sand dune constructed to an elevation of 15 feet above mean sea level, fronted by a storm berm constructed to an elevation of 11 feet above mean sea level along a reach of 17,400 feet. At the south end of the fill, near New Topsail Inlet, a terminal groin will be constructed to prevent sediment losses from the fill. Total project costs are currently estimated at $73,700,000 and the average annual benefits are $3,141,000 for hurricane and storm damage reduction, and $199,000 for recreation. The project benefit-cost ratio is 1.7 to 1.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests must provide all lands, easements, rights-of-way, relocations, disposal areas and borrow areas, presently estimated at $2,474,000; pay 35 percent of the project costs allocated to hurricane and storm damage reduction, presently estimated at $23,326,000; and bear all costs of operation, maintenance, repair and replacement of hurricane storm damage reduction facilities, presently estimated at $13,000 annually.

Fiscal Year 1990 funds are being utilized to initiate preconstruction engineering and design. Fiscal Year 1991 funds will be used to continue the General Design Memorandum. Preconstruction engineering and design is scheduled for completion in January 1993.

South Carolina

Folly Beach	1,300,000	309,000	342,000	400,000	249,000

Folly Beach is a fully developed residential and commercial beach that is threatened by coastal erosion and storm damages. The authorized project provides for beach restoration and periodic nourishment for 16,860 feet of beach. A Section 111 report was approved in 1988 which finds that the Federal navigation project at Charleston Harbor is responsible for 57% of the total erosion at Folly Beach. An economic re-evaluation report was completed in August 1988, and determined that a potential Federal project exists based on storm damage prevention benefits. The recommended project is estimated to cost $11,100,000. The average annual benefits amount to $4,839,000 for storm damage prevention. The benefit cost ratio is 7.4 to 1.

The project is authorized for construction by the Water Resources Development Act of 1986 with the following cost sharing requirements. Local interests must provide all lands, easements, rights-of-way, relocations, disposal areas and borrow areas, presently estimated at $60,000; and pay 35 percent of the first costs and future nourishment allocated to hurricane and storm damage reduction, presently estimated at $3,885,000.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

c. Shoreline Protection: Folly Beach (cont'd)

Fiscal Year 1990 funds are being used to continue preconstruction engineering and design to include coordination of the borrow source, develop models, economic studies, and initiate real estate coordination. The funds requested for Fiscal Year 1991 will be used to continue preconstruction engineering and design, performing model study production runs, beach fill design, economic studies, environmental studies, and continue real estate coordination. Preconstruction engineering and design is scheduled for completion in September 1992.

Myrtle Beach	2,300,000	0	257,000	1,200,000	843,000

The project area, often referred to as the Grand Strand, is a major recreation area and economic resource of the State. The value of front row coastal development for the 37 mile reach is estimated to be in excess of $1.4 billion. Based on without project conditions and historical erosion rates, the average annual equivalent damages to 1,400 structures is estimated to be $21,549,000. The recommended project, estimated to cost $92,510,000, consists of the placement of a total of 5.0 million cubic yards of sand for construction of 22.6 miles of protective beach and is designed to provide a five-year storm surge protection. Estimated annual benefits are $22,599,000 of which $17,086,000 are attributed to storm damage reduction and $5,513,000 for recreation use. The project benefit cost ratio is 3.4 to 1.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests must pay 50 percent of the estimated separable costs allocated to recreation; provide all lands, easements, rights-of-way, relocations, disposal areas and borrow areas, at no cost to the project; and pay 35 percent of the first costs and future nourishment allocated to hurricane and storm damage reduction, presently estimated at $32,379,000.

Fiscal Year 1990 funds are being used to initiate preconstruction engineering and design to include geotechnical investigations. The funds requested for Fiscal Year 1991 will be used to continue preconstruction engineering and design studies including economic, environmental and engineering studies. Preconstruction engineering and design is scheduled for completion in September 1992.

Total Shoreline Protection	8,150,000	1,148,000	1,197,000	2,860,000	2,945,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
d. Multiple Purpose Power: None					
TOTAL, PED - CONTINUING	30,526,000	6,919,000	5,057,000	8,903,000	9,647,000
TOTAL, PRECONSTRUCTION ENGINEERING AND DESIGN	32,686,000	6,919,000	5,057,000	9,813,000	10,897,000
GRAND TOTAL - SURVEYS AND PRECONSTRUCTION ENGINEERING AND DESIGN:	52,602,000	12,746,000	7,523,000	12,972,000	19,361,000

1 9 JAN 1990

APPROPRIATION TITLE: Construction, General - Locks and Dams (Navigation)

PROJECT: Tennessee-Tombigbee Waterway Wildlife Mitigation, Alabama and Mississippi (New)

LOCATION: The project is located in the states of Alabama and Mississippi.

DESCRIPTION: The plan of mitigation consists of land acquistion and management to restore wildlife losses resulting from construction, operation, and maintenance of the Tennessee-Tombigbee Waterway project.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable. 1/

TOTAL BENEFIT - COST RATIO: Not applicable. 1/

INITIAL BENEFIT - COST RATIO: Not applicable. 1/

BASIS OF BENEFIT - COST RATIO: Not applicable. 1/

1/ Mitigation is incrementally justified through consideration of costs and non-monetary and monetary benefits; accordingly, a benefit-cost ratio is not computed (see Justification paragraph).

SUMMARIZED FINANCIAL DATA

			Accum. Pct. of Estmtd. Fed. Cost
Estimated Federal Cost (CofE)		$66,000,000	
Estimated Non-Federal Cost		0	
Cash Contribution $	0		
Other	0		
Total Estimated Project Cost		$66,000,000	
Allocations to 30 September 1989		0	
Conference Allowance for FY 1990		0	
Allocation for FY 1990		200,000	
Allocations through FY 1990		200,000	0

		Accum. Pct. of Estmdt. Fed. Cost
Allocation Requested for FY 1991	$20,000,000	31
Scheduled Balance to Complete after FY 1991	45,800,000	
Unscheduled Balance to Complete after FY 1991	0	

STATUS: (1 Jan 1990) Construction not started	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	0	Sep 1996

30 JAN 1990

PHYSICAL DATA

LANDS: In Alabama not less than 20,000 acres are to be acquired in the area of the Mobile-Tensaw Delta, Alabama. In Mississippi not less than 25,000 acres are to be acquired in the areas of the Pascagoula River, the Pearl River, and the Mississippi River Basins, Mississippi. Other lands are to be acquired anywhere in the States of Alabama and Mississippi.

JUSTIFICATION: The construction of the Tennessee-Tombigbee Waterway (TTW) has resulted in unavoidable, significant losses of wildlife resources. These losses result primarily from conversion of terrestrial habitats to open water for project pools and canals, construction of project facilities, deposition of excavated material, and construction of recreation facilities. Construction of the Waterway adversely impacted approximately 62,800 acres of wildlife habitat. Approximately 34,000 acres of bottomland hardwood habitat was converted to open water and other less valuable habitats. Bottomland hardwoods are recognized as a diminishing resource on a regional and national scale and are recognized as the most productive wildlife habitat in the project area.

Implementation of the Tennessee-Tombigbee Waterway Wildlife Mitigation plan will begin in FY 1991. Under the plan, 88,000 acres of land will be acquired for mitigation purposes; 47,000 of these acres will be acquired in FY 1991. The monetary and nonmonetary benefits of the authorized mitigation plan are deemed to outweigh the costs of the plan in order to replace the significant wildlife losses resulting from construction, operation and maintenance of the Tennessee-Tombigbee Waterway project.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate Land Acquisition	$19,000,000
Complete the General Design Memorandum	800,000
Complete the Real Estate Design Memorandum	200,000
Total	$20,000,000

NON-FEDERAL COSTS: There are no non-Federal costs.

STATUS OF LOCAL COOPERATION: The authorizing legislation specifies that the states of Alabama and Mississippi shall provide for the management for wildlife purposes of lands acquired and lands currently owned by the United States in the project area which are designated as wildlife mitigation lands. The legislation also specifies that the Corps shall reimburse the states for such management and initial developement costs as specified in a plan for management of mitigation lands to be developed jointly by the Corps, U.S. Fish and Wildlife Service, and the states of Alabama and Mississippi. A plan for management by the states of Alabama and Mississippi of mitigation lands currently owned by the United States is being developed jointly as specified in the authorizing legislation. This plan is expected to be extended to manage the land that will be acquired as part of this mitigation project.

COMPARISON OF FEDERAL COST ESTIMATES: The current (Corps of Engineers) cost estimate of $66,000,000 is an increase of $5,800,000 from the latest estimate of ($60,200,000) submitted to Congress (FY 1986). This change includes the following item:

Item	Amount
Price Escalation on Construction Features	$5,800,000
Total	$5,800,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The acquisition of 88,000 acres of private land into public ownership has been adequately addressed in the Environmental Impact Statement (EIS) contained in the Tennessee-Tombigbee Waterway, Alabama and Mississippi, Wildlife Mitigation Feasibili[illegible] Study Report (WMFSR). Lands purchased will be managed primarily for public purposes as discussed in the wildlife management plan of the WMFSR. The EIS does satisfy the National Environmental Policy Act requirements. However, additional coordination with the Endangered Species Office of the U.S. Fish and Wildlife Service will be required before any management activities are undertaken on areas where Federally endangered or threatened species are known to exist, to comply with the provisions of the Endangered Species Act of 1973, as amended. Also, compliance with the provisions of the Clean Water Act will be required to assure that any adverse impacts from construction will be minimized.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were allocated in FY 1990.

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Black Warrior and Tombigbee Rivers, Vicinity of Jackson, Alabama (Continuing)

LOCATION: The project is located on the Tombigbee River in Clarke County in southwest Alabama in the city of Jackson, Alabama, approximately 90 miles north of Mobile, Alabama.

DESCRIPTION: In conjunction with the realignment project on the existing navigation project, the plan is to construct a spur canal approximately 9 feet deep, 280 feet wide, and 680 feet long.

AUTHORIZATION: Energy and Water Development Appropriations Act of 1987.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable.

TOTAL BENEFIT-COST-RATIO: Not applicable.

INITIAL BENEFIT-COST RATIO: Not applicable.

BASIS OF BENEFIT-COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Estmtd. Fed. Cost
Estimated Federal Cost (CofE)		$2,309,000	
Estimated Non-Federal Cost		691,000	
Cash Contribution	256,000		
Other	435,000		
Total Estimated Project Cost		$3,000,000	
Allocations to 30 September 1989		165,000	
Conference Allowance for FY 1990		75,000	
Allocation for FY 1990		65,000 1/	
Allocations through FY 1990		230,000	10

		Accum. Pct. of Estmtd. Fed. Cost
Allocation Requested for FY 1991	95,000	13
Scheduled Balance to Complete after FY 1991	1,984,000	
Unscheduled Balance to Complete after FY 1991	0	

STATUS: (1 Jan 1990) Construction not started	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	0	Jun 1993

1/ Reflects reduction of $7,000 assigned as savings and slippage, $1,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $2,000 reprogrammed from the project.

Division: South Atlantic District: Mobile

19 JAN 1990

PHYSICAL DATA

Channel	290 feet wide by 680 feet long by 9 feet deep

JUSTIFICATION: There are no public port facilities to serve Jackson, Alabama on the Black Warrior-Tombigbee waterway between Mobile, 90 miles to the south and Demopolis, 127 miles to the north. The port facility would produce transportation savings to commodities currently moving in the Jackson area.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Engineering and Design	$55,000
Supervision and Administration	40,000
Total	$95,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resource Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$385,000	
Modify or relocate utilities and other facilities, where necessary in the construction of the project.	50,000	
Pay 10 percent of the costs allocated to commercial navigation during construction.	256,000	0
Pay an additional 10 percent of the costs allocated to commercial navigation within a period of 30 years following completion of construction which is entirely offset by a credit allowed for the value of lands, easements, rights-of-way, relocations (except utility relocations), and dredged material disposal areas.	0	0
Total Non-Federal Costs	$691,000	

Division: South Atlantic

District: Mobile

Black Warrior and Tombigbee Rivers,
Vicinity of Jackson, AL

20 JAN 1990

STATUS OF LOCAL COOPERATION: Voters of Clarke County, Alabama, approved a State Constitutional Amendment in the general election on 4 November 1986 which allowed the city of Jackson, Alabama, to appoint a Port Authority. The Port Authority will be the local sponsor. A Local Cooperation Agreement will be negotiated in the second quarter of FY 1991.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $2,309,000 is an increase of $221,000 over the latest estimate ($2,088,000) submitted to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 80,000
Design Change	141,000
Total	$221,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: After completion of further project formulation investigations, environmental documentation will be finalized.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1987. Fish and wildlife costs are estimated at $115,000, all non-Federal.

APPROPRIATION TITLE: Construction, General - Locks and Dams (Navigation)

PROJECT: William Bacon Oliver Lock and Dam (Replacement), Alabama (Continuing)

LOCATION: The project is located on the Black Warrior River within the city limits of Tuscaloosa, Alabama.

DESCRIPTION: The plan of improvement is to replace the existing Oliver Lock & Dam with a new lock and dam located 2,300 feet downstream. The replacement lock will have dimensions of 110 x 600 feet and a fixed crest spillway will extend 800 feet across the river.

AUTHORIZATION: Supplemental Appropriation Act of 1985 and the Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 14.6 to 1 at 8 1/8 percent.

TOTAL BENEFIT - COST RATIO: 3.3 to 1 at 8 1/8 percent.

INITIAL BENEFIT - COST RATIO: 3.0 to 1 at 8 1/8 percent (FY 1985).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation approved in September 1984 at October 1982 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$111,000,000
General Appropriations	$55,500,000	
Inland Waterways Trust Fund	55,500,000	
Estimated Non-Federal Cost		0
Total Estimated Project Cost		$111,000,000

	GENERAL APPROPRIATIONS	INLAND WATERWAYS TRUST FUND	Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1989	$31,197,000	$31,197,000	
Conference Allowance for FY 1990	12,500,000	12,500,000	
Allocation for FY 1990	10,808,000 1/	10,808,000 1/	
Allocations through FY 1990	42,005,000	42,005,000	76
Allocation Requested for FY 1991	2,750,000	2,750,000	81
Scheduled Balance to complete after FY 1991	10,745,000	10,745,000	
Unscheduled Balance to complete after FY 1991	0	0	

1/ Reflects reduction of $2,412,000 assigned as savings and slippage, $257,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $715,000 reprogrammed from the project.

Division: South Atlantic District: Mobile

William Bacon Oliver Lock and Dam
(Replacement), AL

2 9 JAN 1990

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Lock-in Operation		Dec 1991
Entire Project	60	Dec 1992

PHYSICAL DATA

LOCK: (110' x 600') lift, 28 feet

DAM: 800 feet of Fixed Crest Spillway

RELOCATIONS: $330,000
Utilities 330,000

LANDS AND DAMAGES:
Acres: Fee - 94 acres Easement - 171 acres

JUSTIFICATION: The Black Warrior-Tombigbee Waterway (BWT) is vital to the needs of producers and users of such bulk commodities as coal, iron ore, cement, and petroleum products. Oliver Lock and Dam is the only lock in the BWT system that requires multiple locking for the standard 6 barge tows using the system. Modification of this lock will allow the tows to substantially reduce lockage time, which will allow this section of the Waterway to handle more traffic in less time. This will reduce the costs of navigating this portion of the river. Commerce through the Oliver Lock and Dam in 1988 was 10,915,000 tons. The average annual benefits are $35,595,000.

FISCAL YEAR 1991: The requested amounts will be applied as follows:

Continue Construction of Lock and Dam	$4,400,000
Continue Engineering and Design	100,000
Continue Supervision and Administration	1,000,000
Total	$5,500,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, one-half of the total cost of construction of navigation lock and dam projects will be paid by amounts appropriated from the Inland Waterways Trust Fund.

STATUS OF LOCAL COOPERATION: A Local Cooperation Agreement is not required.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $111,000,000 is the same as the latest estimate ($111,000,000) submitted to Congress (FY 1990).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency in June 1984. An Environmental Assessment (EA) on powerline relocations was completed and the Findings of No Significant Impact (FONSI) was signed by the District Commander on 3 June 1986. An EA on construction modifications was completed and the FONSI signed by the District Commander on 22 December 1986.

OTHER INFORMATION: Funds to initiate continuation of planning and engineering were appropriated in FY 1984. Funds to initiate construction were appropriated in FY 1985.

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Canaveral Harbor, Florida (Continuing)

LOCATION: Canaveral Harbor is located in Brevard County on the central Atlantic Coast about 146 miles south of Jacksonville, Florida.

DESCRIPTION: The project provides for a 44-foot entrance channel, 35-foot turning basin, 12-foot barge channel, 400 foot lock, a sand bypassing system, and south jetty extension of 500 feet.

AUTHORIZATION: Rivers and Harbor Act of 23 October 1962 and the Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 7.2 to 1 at 8 7/8 percent.

TOTAL BENEFIT COST - RATIO: 4.8 to 1 at 2 7/8 percent.

INITIAL BENEFIT - COST RATIO: 1.7 to 1 at 2 7/8 percent (FY 1964).

BASIS OF BENEFIT - COST RATIO: Benefits are from the October 1961 Survey Report at March 1960 price levels, the December 1972 Harbor Extension General Design Memorandum at December 1972 price levels, and the March 1984 West Basin and Approach Channels Design Memorandum at October 1983 price levels.

SUMMARIZED FINANCIAL DATA				Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost			$18,300,000	
Scheduled Construction			13,579,000	
Unscheduled Construction			4,721,000	
Estimated Non-Federal Cost			4,718,000	
Scheduled Construction		$4,718,000		
Cash Contributions	$ 166,000			
Other Costs	4,552,000			
Total Estimated Scheduled Construction Cost			$18,257,000	
Total Estimated Unscheduled Construction Cost			4,761,000	
Total Estimated Project Cost			23,018,000	

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Locks	100	Mar 1966
Channels & Canals	98	Jun 1991
Barge Canal	100	Aug 1965
Harbor Ext. Mi 1.2 to Mi 1.5	100	Sep 1974
Harbor Ext. Mi 1.5 to Mi 2.3 incl Mitigation	99	Jun 1991
Breakwaters and Seawalls		
Jetty Extension	0	Unscheduled

Division: South Atlantic District: Jacksonville

19 JAN 1990

SUMMARIZED FINANCIAL DATA (Cont'd)		Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1989	$12,679,000	
Conference Allowance for FY 1990	0	
Allocation for FY 1990	0	
Allocations Through FY 1990	12,679,000	14
Allocation Requested for FY 1991	900,000	70
Scheduled Balance to Complete after FY 1991	0	
Unscheduled Balance to Complete after FY 1991	4,761,000	

STATUS: (Cont'd)	PERCENT COMPLETE	COMPLETION SCHEDULE
Beach Replenishment Sand Bypass	0	Unscheduled
Entire Project	95	Sep 1991 1/

1/ For scheduled work only, remaining work is not scheduled pending a decision to construct these features.

JUSTIFICATION: Canaveral Harbor is a major port for central Florida, located on the Atlantic coast. The port mainly handles petroleum products and building cement. The average annual tonnage from 1980 through 1987 has been approximately 2.5 million tons. The development and operation of the Rocket-Launching Facility on Cape Kennedy, Patrick Air Force Base located 10 miles south of Canaveral Harbor, and various tracking stations on islands offshore continue to increase the need for this commercial harbor. The west harbor entension will completed with mitigation measures to enhance fish and wildlife management. These measures include culvert installations and island grading to create shallow water habitats. Average annual benefits are as follows:

Annual Benefits	Amount
Navigation	$7,912,000
Beach Erosion Control	1,689,000
Total	$9,601,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate and Complete Mitigation	$725,000
Engineering & Design	50,000
Supervision & Administration	$125,000
Total	$900,000

29 JAN 1990

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide 1.6 percent of the costs allocated to the western harbor extension.	$ 166,000	
Provide lands, easements, rights of way, and dredged material disposal areas.	4,552,000	
Total Non-Federal Costs	$4,718,000	

STATUS OF LOCAL COOPERATION: The Local sponsor is the Canaveral Port Authority. A Section 221 Agreement was accepted on 11 December 1985.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $18,300,000 is a decrease of $8,000,000 from the latest estimate $26,300,000 presented to Congress (FY 1987). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 121,000
Design Changes	-4,336,000
Post-Contract Award and Other Estimating Adjustments	-3,785,000
Total	-$8,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement, which included a Section 404(b)(1) Evaluation, was filed with the Environmental Protection Agency on 15 November 1985.

OTHER INFORMATION: Funds to initiate advance engineering and design were appropriated in FY 1963 and initial construction funds were appropriated in FY 1964.

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: AIWW - Replacement of Federal Highway Bridges, North Carolina (Continuing)

LOCATION: The three remaining federally owned, obsolete swing span bridges over the Atlantic Intracoastal Waterway are at Core Creek, Hobucken, and Fairfield, North Carolina. The new high level Walter B. Jones Bridge (formerly Wilkerson Creek) opened to traffic on 31 July 1981 and the high level Joseph P. Knapp Bridge (formerly Coinjock) opened to traffic on 1 July 1986.

DESCRIPTION: The project provides for replacing the existing bridges with fixed span 2-lane bridges, except Joseph P. Knapp Bridge which is 4-lane, having vertical clearance of 65 feet at mean high water. Construction of Core Creek Bridge is scheduled while Hobucken and Fairfield Bridges are unscheduled.

AUTHORIZATION: River and Harbor Act of 1970, Water Resources Development Act of 1976, and Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable.

TOTAL BENEFIT - COST RATIO: Not Applicable.

INITIAL BENEFIT - COST RATIO: Not Applicable.

BASIS OF BENEFIT - COST RATIO: Not Applicable.

1895

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$68,300,000
Scheduled Construction	$40,916,000	
Unscheduled Construction	27,384,000	
Estimated Non-Federal Cost		$ 0
Total Estimated Scheduled Construction Cost		$40,916,000
Total Estimated Unscheduled Construction Cost		27,384,000
Total Estimated Project Cost		$68,300,000

STATUS: (1 Jan 1990)	PERCENT COMPLETE 1/	COMPLETION SCHEDULE 1/
Walter B. Jones	100	Sep 1983
Joseph P. Knapp	100	Jun 1987
Core Creek	0	May 1993
Hobucken	0	Unscheduled
Fairfield	0	Unscheduled
Entire Project	59	Unscheduled

1/ For scheduled work only, remaining work is unscheduled pending a decision to construct these features.

30 JAN 1990

SUMMARIZED FINANCIAL DATA (Cont'd)

		Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1989	$23,591,000	
Conference Allowance for FY 1990	800,000	
Allocation for FY 1990	692,000 1/	
Allocations through FY 1990	24,283,000	59
Allocation Requested for FY 1991	2,900,000	66
Scheduled Balance to Complete After FY 1991	13,733,000	
Unscheduled Balance to Complete After FY 1991	27,384,000	

1/ Reflects reduction of $77,000 assigned as savings and slippage, $8,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $23,000 reprogrammed from the project.

PHYSICAL DATA

Lands and Damages - 373 acres
Bridges (Walter B. Jones, Joseph P. Knapp, Core Creek, Hobucken, and Fairfield)
Type - Fixed span, 2-lane (Except Joseph P. Knapp which is 4-lane).
Vertical Clearance - 65 feet at mean high water
Horizontal Navigation Opening - 90 feet minimum

JUSTIFICATION: The three remaining bridges to be replaced were constructed during the period from 1930 to 1935, and all are now substandard with relation to current criteria recommended by the Federal Highway Administration, the N.C. Department of Transportation and Highway Safety (NCDOTHS), and the American Association of State Highway and Transportation Officials (AASHTO). All the remaining bridges to be replaced are overstressed when applying the current user loading and when considering the present deteriorated state of the structures and loss of section due to corrosion. Overstress ranges up to 80%. The Core Creek, Hobucken, and Fairfield Bridges are restricted to one-lane traffic, are posted for maximum loads of 10, 10, and 12 tons for single vehicles and have clear roadway widths of only 20, 18 and 20 feet, respectively. The bridges have vertical clearances of only 13 feet 6 inches and are difficult to traverse, especially for bus and heavy traffic. During the period January 1971 to September 1989, there were 67 accidents at Core Creek Bridge, 30 at Hobucken Bridge, and 19 at Fairfield Bridge involving vehicles and tugs striking the bridge structures. Although remedial repairs are being made continuously, this work can no longer render the bridges completely safe. These conditions, together with the economics of operation and maintenance, underscore the urgent need for the immediate replacement of the bridges.

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FISCAL YEAR 1991: The requested amount will be applied as follows:

Complete Land Acquisition for Core Creek	$ 871,000
Initiate Construction of Core Creek Bridge	995,000
Planning, Engineering and Design for Core Creek Bridge	59,000
Construction Management for Core Creek Bridge	207,000
Real Estate Design Memorandum for Hobucken Bridge	20,000
Planning, Engineering and Design for Hobucken Bridge	658,000
Planning, Engineering and Design for Fairfield Bridge	90,000
Total	$2,900,000

NON-FEDERAL COSTS: In accordance with the authorizing legislation, the State of North Carolina must accept ownership responsibilities for the bridges upon completion, including all costs of operation, maintenance, and replacement as listed below:

	Annual Operation, Maintenance, and Replacement Costs
Core Creek Bridge	$9,000
Hobucken Bridge	9,000
Fairfield Bridge	9,000

STATUS OF LOCAL COOPERATION: The State of North Carolina, by resolutions adopted 2 August 1974 and 7 February 1975, reaffirmed its intention of providing the terms of local cooperation with the exception of the 25 percent cost sharing. The Water Resources Development Act of 1976 modified the terms of local cooperation to delete the non-Federal cost sharing requirement for the Walter B. Jones and Joseph P. Knapp Bridges. The Water Resources Development Act of 1986 modified the terms of local cooperation to delete the non-Federal cost-sharing requirement for the Core Creek, Hobucken, and Fairfield Bridges. A local assurance agreement pursuant to Section 221 of the River and Harbor and Flood Control Act of 1970 (PL 91-611) was signed by the Secretary of the Army on 28 July 1977 for the Walter B. Jones Bridge and on 10 August 1979 for the Joseph P. Knapp Bridge. The 221 Agreement for the Joseph P. Knapp Bridge was amended on 1 February 1983 to assure that State highway improvements would proceed concurrently with the bridge construction. These improvements have been completed. The remaining local cooperation agreements are anticipated to be executed as follows after a decision is made to construct these features.

	Anticipated Execution Date
Core Creek Bridge	Jun 1990
Hobucken Bridge	Jan 1992
Fairfield Bridge	Jan 1994

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $68,300,000 is an increase of $4,600,000 over the latest estimate ($63,700,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$1,165,000
Design Changes	1,215,000
Post Contract Award and Other Estimating Adjustments	1,823,000
Sundry	379,000
Price Escalation on Real Estate	18,000
Total	$4,600,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS for all five bridges was filed with CEQ on 16 November 1970. During engineering and design, each bridge is being evaluated separately and updated EIS's were filed or are scheduled to be filed with the Environmental Protection Agency as follows:

	Schedule to EPA	
	Draft	Final
Original	-	Nov 1970
Updated		
Walter B. Jones	May 1974	Dec 1975
Joseph P. Knapp	Aug 1980	Mar 1981
Core Creek	Aug 1989	Feb 1990
Hobucken	Dec 1990	Aug 1991
Fairfield	Dec 1992	Aug 1993

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1973 and funds to initiate construction were appropriated in FY 1974. Construction on the Walter B. Jones Bridge started 14 February 1978, and it was opened to traffic on 31 July 1981.

A Post-Authorization Change was approved on 13 December 1982 to build a 4-lane bridge at Coinjock due to increased traffic count. A contract for construction of the Joseph P. Knapp Bridge was awarded 15 September 1983, and it was opened to traffic on 1 July 1986.

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Charleston Harbor, South Carolina (Deepening) (Continuing)

LOCATION: Charleston Harbor is located on the Atlantic Coast at Charleston, South Carolina, 165 miles south of Wilmington Harbor, North Carolina and 105 miles north of Savannah Harbor, Georgia.

DESCRIPTION: The plan of improvement is to deepen the 35 foot channel to 40 feet (42 in the ocean bar) from the 42 foot ocean contour to Goose Creek a distance of 27.6 miles, construct a turning basin, modify the existing turning basins, deepen and modify the anchorage basin, deepen Shipyard River to 38 feet, maintain the Wando River Channel to 35 feet at Federal expense and deepen this channel to 40 feet. All work for this project is scheduled.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 2.3 to 1 at 8 7/8 percent.

TOTAL BENEFIT - COST RATIO: 1.9 to 1 at 8 7/8 percent.

INITIAL BENEFIT - COST RATIO: 1.8 to 1 at 8 7/8 percent (FY 1988).

BASIS OF BENEFIT - COST RATIO: Benefits are from the General Design Memorandum approved July 1987 at 1986 price levels.

SUMMARIZED FINANCIAL DATA	
Estimated Appropriation Requirement (COE)	$71,001,000
Estimated Appropriation Requirement (US Coast Guard)	34,000
Estimated Total Appropriation Requirement	71,035,000
Future Non-Federal Reimbursement	4,845,000
Estimated Federal Cost (Ultimate)	66,190,000

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Channels and Canals	18	Sept 1994
Entire Project	18	Sept 1994

Division: South Atlantic District: Charleston Charleston Harbor, SC (Deepening)

20 JAN 1990

SUMMARIZED FINANCIAL DATA (cont'd)

Estimated Non-Federal Cost		$33,134,000	
Cash Contributions	$23,667,000		
Other costs	4,622,000		
Reimbursements	4,845,000		
Navigation $4,845,000			
Total Estimated Project Cost		$99,324,000	

PHYSICAL DATA

The project will extend from the 42-foot depth in the Atlantic Ocean to Goose Creek, a total distance of 27.6 miles. The Wando River Extension is two miles long. The channel width varies 500 to 700 feet for the inland channel, 1,000 feet in the jetty entrance channel and 450 feet in Wando River.

		Accum. Pct. of Est. Fed. Cost.
Allocations to 30 September 1989	$13,052,000	
Conference Allowance for FY 1990	14,000,000	
Allocation for FY 1990	12,104,000 1/	
Allocations through FY 1990	25,156,000	35
Allocation Requested for FY 1991	11,400,000	51
Scheduled Balanced to Complete After FY 1991	34,445,000	

1/ Reflects reduction of $1,351,000 assigned as savings and slippage, $144,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $401,000 reprogrammed from the project.

JUSTIFICATION: Charleston Harbor is one of the most important ports along the Atlantic Coast. Waterborne commerce, consisting principally of ore, soybeans, petroleum products, pulp, fertilizer, and containerized cargo, amounted to 8,907,313 tons in 1987. Vessels that can economically utilize the existing Federal 35-foot channel have a carrying capacity of about 65,000 to 70,000 deadweight tons. With a 40-foot channel, vessels with carrying capacities of 80,000 to 90,000 deadweight tons can be economically utilized. This increase in carrying capacity results in a corresponding increase in savings in transportation costs. Channel improvements would provide for more efficient and economical use by the existing fleet and provide a safe navigable channel for larger deep draft vessels. All benefits are based on transportation savings by the use of larger vessels and more efficient use of the existing fleet. The average annual benefits are $19,453,000, all for navigation.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Work on Channels and Canals	$10,380,000
Continue Cultural Resources Preservation	82,000
Engineering and Design	300,000
Supervision and Administration	638,000
Total	$11,400,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts as reflected in the Water Resources Development Act of 1986, the non-Federal Sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, right-of-ways, utility relocations, required disposal areas, and berthing areas	$ 4,622,000	
Pay 25 percent of the costs allocated to deep draft navigation during construction	$23,667,000	$1,591,000
Pay an additional ten percent of the costs allocated to deep draft navigation within a period of 30 years following completion of construction (which is partially offset by a credit allowed for the value of lands, easements, rights-of-way, relocations (except utility relocations, and dredged material disposal areas).	$ 4,845,000	
Total Non-Federal Costs	$33,134,000	$1,591,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction and reimburse its share of construction costs over the life of the project.

STATUS OF LOCAL COOPERATION: The current non-Federal cost estimate of $33,134,000 which includes a cash contribution of $23,667,000, is a decrease of $8,632,000 from the non-Federal cost estimate of $41,766,000 included in the previous Project Cost Estimate, which included a cash contribution of $29,833,000. The non-Federal sponsor has indicated that it is financially capable and willing to contribute the non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan formeeting its financial commitment. The Local Cooperation Agreement has been modified to include the Wando River segment.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (Corps of Engineers) cost estimate of $71,001,000 is a decrease of $18,499,000 from the latest estimate ($89,500,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation	-$ 4,572,000
Post-Contract Award and Other Estimating Adjustments	- 13,927,000
Total	-$18,499,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency in March 1976.

OTHER INFORMATION: Funds to intiate preconstruction engineering and design were appropriated in FY 1986 and funds to initiate construction were appropriated in FY 1988.

19 JAN 1990

APPROPRIATION TITLE: Construction, General - Beach Erosion Control Projects

PROJECT: Manatee County, Florida (Continuing)

LOCATION: The project is located along the west-central coast of Florida, immediately south of the entrance to Tampa Bay.

DESCRIPTION: The plan of improvement provides for the placement of fill to form a protective and recreational beach for about 3.2 miles of shore along the Gulf shore of Anna Maria Key together with periodic nourishment. The gulf beach would be filled so as to provide a minimum 50 foot berm at an elevation of 6 feet mean low water. Offshore slopes would be about 1 on 15 from the berm crest to mean low water, thence 1 on 30 to existing bottom.

AUTHORIZATION: Section 201 of the Flood Control Act of 1965.

REMAINING BENEFIT - REMAINING COST RATIO: 5.0 to 1 at 8 7/8 percent.

TOTAL BENEFIT - COST RATIO: 5.0 to 1 at 8 7/8 percent.

INITIAL BENEFIT - COST RATIO: 5.0 to 1 at 8 7/8 percent (FY 1990).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation included in the draft General Design Memorandum submitted in September 1989 at May 1988 price levels.

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$21,300,000	
Estimated Non-Federal Cost		$16,300,000	
Cash Contributions	$15,750,000		
Other Costs	550,000		
Total Estimated Project Cost		$37,600,000	
Allocations to 30 September 1989		$ 115,000	
Conference Allowance for FY 1990		5,000,000	
Allocation for FY 1990		5,000,000 1/	

STATUS (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Groins	0	Sep 1992
Initial and Adv Nourishment	0	Sep 1992
Renourishment	0	Sep 2042
Entire Project	0	Sep 2042

1/ Reflects reduction of $70,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $70,000 reprogrammed to the project.

29 JAN 1990

SUMMARIZED FINANCIAL DATA (Cont'd)

SUMMARIZED FINANCIAL DATA (Cont'd)		Accum. Pct. of Est. Fed. Cost
Allocations through FY 1990	$ 5,115,000	24
Allocation Requested for FY 1991	2,320,000	35
Scheduled Bal. to Complete After FY 1991	13,865,000	
Unscheduled Bal. to Complete After FY 1991	0	

PHYSICAL DATA

Groins	1,820 tons of bedding stone and 6,650 tons of armor stone.
Placement of Initial Beach Fill	1,704,000 CY
Periodic Beach Nourishment	66,000 CY annually.

JUSTIFICATION: Three towns are located on Anna Maria Key; the City of Anna Maria, Holmes Beach, and Bradenton Beach. Front row structural improvements for homes in Bradenton Beach were valued at $66.6 million in 1988. Property on the Key was valued at $119.4 million in 1986. Primary project benefits are due to the prevention of damages to upland structures, and prevention of damages to State Road 789. State Road 789 is the only evacuation route for the southern end of Anna Maria Key and the northern end of Longboat Key. Tropical storms from 1982 to 1985 destroyed 2,855 feet of bulkhead. In addition, 11 major structures were damaged or destroyed as well as numerous family dwellings. Average annual benefits are as follows:

Annual Benefits	Amount
Shoreline Protection	
Storm damage reduction	$3,938,000
Land enhancement	3,240,000
Loss of land	693,000
Recreation	321,000
Total	$8,192,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue nourishment of Anna Maria Key	$2,245,000
Supervision and Administration	75,000
Total	$2,320,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursement	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, and rights of way	$ 550,000	
Pay 42.5 percent of all costs associated with the nourishment and renourishment of the project	$15,750,000	
Total Non-Federal Payments during construction and reimbursements	$16,300,000	

STATUS OF LOCAL COOPERATION: The Manatee County Board of County Commissioners is the local sponsor; they provided $200,000 advance funding for preconstruction engineering and design in FY 1987. A Local Cooperation Agreement reflecting the cost sharing requirements of the Water Resources Development Act of 1986 will be negotiated in the fourth quarter of FY 1990.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $21,300,000 is an increase of $16,020,000 over the latest estimate ($4,920,000) presented to Congress (FY 1978). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$10,776,000
Design Changes	5,244,000
Total	$16,020,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Impact Statement (EIS) was filed with the Environmental Protection Agency on 29 June 1979. A supplement to the EIS will be submitted in May 1990.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1988. Funds to initiate construction were appropriated in FY 1990.

APPROPRIATION TITLE: Construction, General - Beach Erosion Control Projects

PROJECT: Pinellas County, Florida (Continuing)

LOCATION: The project is located along the west-central coast of Florida covering about 25 miles of the island beaches in the Clearwater-St. Petersburg area of Pinellas County extending from Dunedin Pass to Pass-A-Grille.

DESCRIPTION: The project provides for restoration of 5,000 feet of beach at Clearwater Beach Island, 49,000 feet of beach at Sand Key, 9,200 feet of beach at Treasure Island, advance nourishment of each island, construction of 600 feet of revetment at Long Key and breakwaters at locations along Sand Key.

AUTHORIZATION: River and Harbor Act of 1966 and Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 5.1 to 1 at 3 1/8 percent.

TOTAL BENEFIT - COST RATIO: 5.9 to 1 at 3 1/8 percent.

INITIAL BENEFIT - COST RATIO: 1.5 to 1 at 3 1/8 percent (FY 1969).

BASIS OF BENEFIT - COST RATIO: Benefits are from the January 1966 Pinnellas County Beach Erosion Control study at fall 1965 price levels.

SUMMARIZED FINANCIAL DATA				Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost			$63,600,000	
Scheduled Construction		$61,401,000		
Unscheduled Construction		2,199,000		
Estimated Non-Federal Cost			$65,400,000	
Scheduled Construction		63,202,000		
Cash Contributions	$63,140,000			
Other Costs	62,000			
Estimated Non-Federal Cost Unscheduled Construction		2,198,000		
Cash Contributions	$ 2,198,000			
Other Costs	0			

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Groins:		
Treasure Island	100	Sep 1976
Treasure Island Groin No. 2 Extension	100	Jun 198[illegible]
Pass-A-Grille	100	Jun 1984
Redington Shores Breakwater	100	Mar 1986
Rehabilitation of N. Groin at Johns Pass	100	Dec 1987
Breakwaters:		
Long Key	100	Sep 1986
Indian Shores	0	Unscheduled
Indian Rocks-South	0	Unscheduled
Indian Rocks-North	0	Unscheduled

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SUMMARIZED FINANCIAL DATA (Cont'd)

		Accum. Pct. of Est. Fed. Cost
Total Estimated Scheduled Construction Cost	124,603,000	
Total Estimated Unscheduled Construction Cost	4,397,000	
Total Estimated Project Cost	129,000,000	
Allocations to 30 September 1989	$ 9,990,000	
Conference Allowance for FY 1990	3,700,000	
Allocation for FY 1990	3,199,000 1/	
Allocations through FY 1990	13,189,000	21
Allocation Requested for FY 1991	2,500,000	26
Scheduled Balance to Complete After FY 1991	45,712,000	
Unscheduled Balance to Complete After FY 1991	2,199,000	

STATUS: (Cont'd)	PERCENT COMPLETE	COMPLETION SCHEDULE
Initial Fill:		
Treasure Island	100	Jul 1969
Long Key	100	Apr 1980
Sand Key		
Redington Shores	100	Sep 1985
Remainder	0	Sep 1991
Nourishment:		
Treasure Island (1st, 2d,3d,4th)	100	Nov 1971, Mar 1973,Sep 1976 Jun 1983
Long Key (Advance)	100	Apr 1980
Remaining	5	Sep 2040
Sand Key	0	Sep 2041
Clearwater	0	Sep 2046
Entire Project	30	Sep 2046

1/ Reflects reduction of $357,000 assigned as savings and slippage, $38,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $106,000 reprogrammed from the project.

PHYSICAL DATA

Groins	1,850 tons of bedding stone and 3,400 tons of armor stone.
Revetment	2,700 tons of riprap and 1,600 tons of filter stone.
Placement of Initial Beach Fill	3,443,000 CY
Periodic Beach Nourishment	110,000 CY annually.

JUSTIFICATION: Erosion problems include the lowering of beach profiles, recession of the shorelines, and damage to upland properties. The shore is highly developed and used intensively year round. The project will provide needed restoration and stability of the beaches and protection for shore development. Beach ownership is predominantly private. Nourishment completed to date at Treasure Island and Long Key has been highly successful in retaining the material and providing protection to development while providing a large recreational beach. The Treasure Island segment provides restoration and protection along 2.4 miles of shore. The Long Key segment provides restoration and nourishment along 1.5 miles of shore. The beach restoration at Sand Key will prevent damages to development and provide a highly used recreational beach. Local interests are attempting to establish public beaches gulfward of private property over major parts of the project length. Average annual benefits are as follows:

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JUSTIFICATION: (Cont'd)

Annual Benefits	Amount
Beach erosion control	$ 7,642,000
Recreation	8,893,000
Total	$16,535,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue nourishment of Sand Key	$2,300,000
Engineering and Design	100,000
Supervision and Administration	100,000
Total	$2,500,000

NON-FEDERAL COST: The estimated cost to the local sponsor, Pinellas County Board of County Commissioners, of complying with the requirements of local cooperation for construction of the project as set forth in the authorizing legislation is $65,400,000.

Requirements of Local Cooperation	Payments During Construction and Reimbursement	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, and rights-of-way	$ 62,000	
Pay 50.6 percent of all costs associated with the nourishment and renourishment of the project	$65,338,000	
Total Non-Federal Costs	$65,400,000	

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STATUS OF LOCAL COOPERATION: Assurances of local cooperation from the Pinellas County Board of Commissioners were accepted by the District Engineer on 22 March 1967. Additional assurances required by Public Law 91-646 were accepted in May 1971. The Pinellas County Board of County Commissioners have adopted resolutions agreeing to act as local sponsor for the Long Key, St. Petersburg Beach and Sand Key segments.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $63,600,000 is an increase of $41,600,000 over the latest estimate ($22,000,000) submitted to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 1,400,000
Design Changes	5,133,000
Post Contract Award and Other Estimating Adjustments	- 15,000
Authorized Modifications	35,082,000
Total	$41,600,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement for Sand Key, Pinellas County project, and Section 404(b)(1) Evaluation were filed with the Environmental Protection Agency on 8 November 1985.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1968. Funds to initiate construction were appropriated in Fiscal Year 1969.

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APPROPRIATION TITLE: Construction, General - Beach Erosion Control Projects

PROJECT: Sarasota County, Florida (Continuing)

LOCATION: Sarasota County is located along the lower west coast of Florida approximately 55 miles southwest of Tampa.

DESCRIPTION: The project provides for a protective beach along 12,600 feet of shoreline on central Longboat Key and 21,000 feet on Manasota Key, periodic nourishment of both areas, as well as 8,400 feet of existing shore south of Venice. The nourishment of the Brohard/Casperson segments are scheduled at this time. Longboat Key is not scheduled.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 2.7 to 1 at 8 7/8 percent.

TOTAL BENEFIT - COST RATIO: 2.7 to 1 at 8 7/8 percent.

INITIAL BENEFIT - COST RATIO: 2.7 to 1 at 8 7/8 percent (FY 1990).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation for the General Design Memorandum to be submitted in March 1990 at October 1989 price levels.

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$31,800,000	
Scheduled Construction	$30,500,000		
Unscheduled Construction	1,300,000		
Estimated Non-Federal Cost		$22,500,000	
Scheduled Construction	15,500,000		
Cash Contributions $15,500,000			
Other Costs 0			
Estimated Non-Federal Cost			
Unscheduled Construction	7,000,000		
Cash Contributions $7,000,000			
Other Costs 0			

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Initial Fill:		
Venice	0	Sep 1992
Longboat	0	Unscheduled
Nourishment:		
Venice	0	Sep 1992
Longboat	0	Unscheduled
Entire Project	0	Sep 2042

10 JAN 1990

SUMMARIZED FINANCIAL DATA (Cont'd)

		Accum. Pct. of Est. Fed. Cost
Total Estimated Scheduled Construction Cost	46,000,000	
Total Estimated Unscheduled Construction Cost	8,300,000	
Total Estimated Project Cost	54,300,000	
Allocations to 30 September 1989	$ 587,000	
Conference Allowance for FY 1990	2,000,000	
Allocation for FY1990	1,894,000 1/	
Allocations through FY 1990	2,481,000	8
Allocation Requested for FY 1991	2,067,000	14
Scheduled Balance to Complete After FY 1991	25,952,000	

1/ Reflects reduction of $28,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $78,000 reprogrammed from the project.

PHYSICAL DATA

Placement of Initial Beach Fill	2,487,000 CY
Periodic Beach Nourishment	67,200 CY annually.

JUSTIFICATION: The combined effects of wind, waves, and tides, particularly during storm conditions, has resulted in lowering beach profiles and recession of the shoreline. The net result has been damage to public and private properties including roads, houses, and protective structures, such as seawalls and bulkheads. Tropical storms in 1985 destroyed over 550 feet of concrete seawalls in the Longboat Key area and over 800 feet in the Venice section. Average annual benefits are as follows:

Annual Benefits	Amount
Storm damage prevention	$2,022,000
Recreation	848,000
Total	$2,870,000

JUSTIFICATION: (Cont'd)

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate initial fill of Venice Beach	$1,900,000
Supervision and Administration	167,000
Total	$2,067,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursement	Annual Operation, Maintenance, and Replacement Costs
Pay 41.4 percent of all costs associated with the nourishment and renourishment of the project	$22,500,000	
Total Non-Federal Costs	$22,500,000	

STATUS OF LOCAL COOPERATION: The local sponsor for the Venice segment is the City of Venice in cooperation/agreement with the County. A Local Cooperation Agreement reflecting cost sharing concepts of the Water Resources Development Act of 1986 will be negotiated in the third quarter of FY 1990.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $31,800,000 is an increase of $14,400,000 over the latest estimate ($17,400,000) submitted to Congress (FY 1986). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 700,000
Post Contract Award and Other Estimating Adjustments	13,700,000
Total	$14,400,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency with a Section 404(b)(1) Evaluation on 9 April 1985.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1988. Funds to initiate construction were appropriated in FY 1990.

Division: South Atlantic District: Jacksonville Sarasota County, FL

29 JAN 1990

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Threemile Creek, Mobile, Alabama (Continuing)

LOCATION: The project is located near the Gulf of Mexico in the southwest corner of the State of Alabama and in the city of Mobile, approximately 180 miles southwest of Montgomery, Alabama.

DESCRIPTION: The plan of improvement consists of channel widening and deepening from about 2,000 feet downstream of Stone Street to a point about 6,300 feet upstream of Interstate 65 or a total distance of 5.6 miles.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 2.0 to 1 at 8 5/8 percent.

TOTAL BENEFIT - COST RATIO: 1.03 to 1 at 8 5/8 percent.

INITIAL BENEFIT - COST RATIO: 1.1 to 1 at 8 5/8 percent (FY 1987).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation approved in April 1984 at October 1981 price levels.

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost (CofE)		$16,691,000	
Estimated Non-Federal Cost		7,939,000	
Cash Contribution	1,216,000		
Other	6,723,000		
Total Estimated Project Cost		$24,630,000	
Allocations to 30 September 1989		2,390,000	
Conference Allowance for FY 1990		3,500,000	
Allocation for FY 1990		3,026,000 1/	
Allocations through FY 1990		5,416,000	33
Allocation Requested for FY 1991		4,000,000	57
Scheduled Balance to Complete after FY 1991		7,275,000	
Unscheduled Balance to Complete after FY 1991		0	

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	15	Sep 1992

1/ Reflects reduction of $338,000 assigned as savings and slippage, $36,000 sequestered in accordance with Gramm-Rudman-Hollings Act, and $100,000 reprogrammed from the project.

19 JAN 1990

PHYSICAL DATA

RELOCATIONS:	Railroad Bridge Modifications	2 ea	$235,000

CHANNELS:	Channel Improvement	29,500 ft.
	Flow Control Dikes	30,410 ft.
	Drop Structures	5
	Drainage Structures	33

JUSTIFICATION: Threemile Creek originates in the western part of Mobile, Alabama and flows easterly about 14 miles to enter the Mobile River near the Alabama State Docks. The drainage area of the basin consists of 39 square miles of urbanized area. The Threemile Creek flood control project protects mainly the downstream portion of the project, which has a history of flooding, with the most recent events occurring in April and May of 1980 and May 1981. The 1980 floods damaged about 500 homes, numerous businesses, and caused extensive damage to roads, utilities, and other public facilities. Total damages were estimated to be about $18,000,000. The May 1981 flood damaged approximately 1,000 homes and 100 businesses. These damages were estimated at $23,400,000. As a result of the floods and Hurricane Frederic in September 1979, Mobile was declared a Federal disaster for 3 consecutive years. There are 1,209 structures existing in the flood plain valued at $121,256,000, of which 1,105 are residential and 104 are Commercial/Industrial structures. Average annual damages without the project are $1,968,000 and $88,000 with the project. The project will reduce damages about 95 percent. All flood damage prevention benefits are urban with 95 percent attributable to existing development and 5 percent to future development. Average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$1,855,000
Recreation	32,000
Total	$1,887,000

29 JAN 1990

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Relocations	$ 999,000
Continue Channels & Canals	2,860,000
Engineering and Design	20,000
Supervision and Administration	121,000
Total	$4,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$5,995,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project (which is partially offset by a credit of $6,447,000 based on the local sponsors ability to pay).	568,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	160,000	$ 1,000
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, and replacement of flood control facilities	1,216,000	43,000
Total Non-Federal Costs	$7,939,000	$44,000

The local sponsor has agreed to make all payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The local sponsor is the city of Mobile, Alabama. The Local Cooperation Agreement was executed by the city of Mobile, Alabama and the Assistant Secretary of the Army (Civil Works) on 30 September 1987.

The current non-Federal cost estimate of $7,939,000, which includes a cash contribution of $1,216,000, is an increase of $1,629,000 from the non-Federal cost estimate of $6,310,000 which was provided the sponsor during preparation of the Local Coperation Agreement, which included a cash contribution of $1,070,000. The non-Federal sponsor has indicated that it is financially capable and willing to contribute the non-Federal share of the cost. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $16,691,000 is an increase of $2,516,000 over the latest estimate ($14,175,000) submitted to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ 677,000
Post Contract Award and other Estimating Adjustments	1,839,000
Total	$2,516,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A final Environmental Impact Statement was filed with the Environmental Protection Agency on 10 November 1983.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1984. Funds to initiate construction were appropriated in FY 1987.

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Village Creek, Jefferson County, Alabama, (Continuing)

LOCATION: The project is located in central Alabama, Jefferson County, in the city of Birmingham, Alabama.

DESCRIPTION: The plan of improvement is basically nonstructural and includes evacuating 642 structures in six separate neighborhoods from the floodplain; enlarging two miles of the stream channel in the vicinity of the Municipal Airport which involves modification of one railroad and two highway bridges, demolishing two highway bridges, and relocating two waterlines and other utilities, installing three emergency floodwarning devices; and creating an area of 210 acres which can be utilized for future recreational developments.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 2.1 to 1 at 8 5/8 percent.

TOTAL BENEFIT - COST RATIO: 1.3 to 1 at 8 5/8 percent.

INITIAL BENEFIT - COST RATIO: 1.7 to 1 at 8 5/8 percent (FY 1987).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation approved in October 1987 at October 1985 price levels.

SUMMARIZED FINACIAL DATA			Accum. Pct. of Estmtd. Fed. Cost
Estimated Federal Cost (CofE)		$31,965,000	
Estimated Non-Federal Cost		12,035,000	
Cash Contribution	$10,075,000		
Other	1,960,000		
Total Estimated Project Cost		$44,000,000	
Allocations to 30 September 1989		2,591,000	
Conference Allowance for FY 1990		10,000,000	
Allocation for FY 1990		8,646,000 1/	
Allocations through FY 1990		11,237,000	35

		Accum. Pct. of Estmtd. Fed. Cost
Allocation Requested for FY 1991	$ 3,000,000	45
Scheduled Balance to Complete after FY 1991	17,728,000	
Unscheduled Balance to Complete after FY 1991	0	

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	6	Jun 1994

1/ Reflects reduction of $965,000 assigned as savings and slippage, $103,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $286,000 reprogrammed from the project.

29 JAN 1990

PHYSICAL DATA

LANDS AND DAMAGES:	Flood Plain Evacuation	642 Structures
RELOCATIONS:	Railroad Bridge Modification	1 ea $305,000
CHANNELS:	Channel Enlargement	2.0 Miles

JUSTIFICATION: Flooding along Village Creek is frequent and serious. Damages to this older section of the city of Birmingham places a tremendous financial burden on residents who are evacuated during floods. Evacuation of residents from the flood plain under the Uniform Relocation and Land Acquisitions Policy Act, PL 91-646, will result in safe and decent housing for many flood victims. Damages also occur to industrial development and to the Municipal Airport. Evacuation of houses and protection of industrial plants provide benefits in excess of costs. Average annual damages to existing development are estimated to exceed $5.6 million at October 1985 prices. The flood of record which occurred on 19 and 20 March 1970 approximated the 100-year event. It is estimated that this event caused damages in excess of $7.9 million at that time, or nearly $29.0 million at October 1985 prices. There have been eight other major floods, seven of which have resulted in Presidential Declaration of Disaster for the Village Creek area. The flood of 6-7 September 1977 was declared a State of Emergency allowing Small Business Administration low interest loans rather than a Presidential Declaration of Disaster. The average annual benefits are $3,591,000, at October 1985 price levels, all for flood control.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Lands and Damages	$2,880,000
Engineering and Design	50,000
Supervision and Administration	70,000
Total	$3,000,000

29 JAN 1990

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$ 550,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	1,410,000	
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, and replacement of flood control facilities.	225,000	$48,000
Pay 25 percent of the total first cost allocated to the non-structural portion of the project.	9,850,000	
Total Non-Federal Costs	$12,035,000	$48,000

The non-Federal sponsor has also agreed to make all required payments concurrently with the project construction.

STATUS OF LOCAL COOPERATION: The local sponsor is the city of Birmingham, Alabama. The Local Cooperation Agreement was executed by the city of Birmingham, Alabama and the Assistant Secretary of the Army (Civil Works) on 14 December 1988.

The current non-Federal cost estimate of $12,035,000, which includes a cash contribution of $225,000 for the structural portion of the project is the same as the estimate provided the sponsor during preparation of the Local Cooperation Agreement. The non-Federal sponsor has indicated that it is financially capable and willing to contribute the non-Federal share of the cost. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting the financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corp of Engineers) cost estimate of $31,965,000 is the same as the latest estimate ($31,965,000) submitted to Congress (FY 1990).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on 18 June 1982.

OTHER INFORMATION: Funds to initiate preconstruction planning and engineering were appropriated in FY 1984 and funds to initiate construction were appropriated in FY 1987.

APPROPRIATION TITLE: Construction, General - Local Protection Project (Flood Control)

PROJECT: Central and Southern Florida, Florida (Continuing)

LOCATION: The project is located in the southeasterly 18 counties of the State of Florida. Principle areas are the Upper St. Johns River Basin, Kissimmee River Basin, Lake Okeechobee-Everglades Area, and East Coast-Everglades Area.

DESCRIPTION: The Central and Southern Florida Project involves an area of about 16,000 square miles, which includes all or part of 18 counties in central and southern Florida. It embraces Lake Okeechobee, its regulatory outlets, a large portion of the Everglades, the Upper St. Johns and Kissimmee River Basins, and the lower east coast of Florida. Project purposes are flood relief and water conservation. The West Palm Beach Canal, Herbert Hoover Revetment, Upper St. Johns River, and Shingle Creek separable elements are currently scheduled.

AUTHORIZATION: Flood Control Acts of 1948, 1954, 1960, 1962, 1965, and 1968; Authorization in 1970 under Section 201 of the Flood Control Act of 1965, and the Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 4.0 to 1 at 2 1/2 percent.

TOTAL BENEFIT - COST RATIO: 4.8 to 1 at 2 1/2 percent.

INITIAL BENEFIT - COST RATIO: 2.1 to 1 at 2 1/2 percent (FY 1950).

BASIS OF BENEFIT - COST RATIO: Benefits are a composite of the latest benefits available from the individual reports of the separable elements of the total project.

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost (Corps of Engineers)		$930,000,000	
Scheduled Construction	478,770,000		
Unscheduled Construction	451,230,000		
Estimated Federal Cost (U. S. Coast Guard)		2,400,000	
Scheduled Construction	2,400,000		
Unscheduled Construction	0		

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Misc. Completed Works	100	Sep 1986
Herbert Hoover Dike & Levee	50	Sep 1995
West Palm Beach Canal	65	Sep 1997
Upper St. Johns River Basin	0	Sep 1995
Shingle Creek	0	Sep 1992
Entire Project	71	Sep 1997 1/

1/ For scheduled work only, remaining work is not scheduled pending a decision to construct these features.

Division: South Atlantic District: Jacksonville Central and Southern Florida, FL

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SUMMARIZED FINANCIAL DATA (Cont'd)

					Accum. Pct. of Est. Fed. Cost
Estimated Non-Federal Cost			537,000,000	1/2/	
Scheduled Construction		226,083,000			
Cash Contribution	73,872,000				
Other Costs	152,211,000				
Unscheduled Construction		310,917,000			
Cash Contribution	160,602,000				
Other Costs	150,315,000				
Total Estimated Scheduled Construction Cost			704,853,000		
Total Estimated Unscheduled Construction Cost			762,147,000		
Total Estimated Project Cost			$1,467,000,000		
Allocations to 30 September 1989			$ 333,435,000		
Conference Allowance for FY 1990			24,500,000		
Allocation for FY 1990			20,803,000	3/	
Allocations through FY 1990			354,238,000		38
Allocation Requested for FY 1991			18,800,000		40
Scheduled Balance to Complete After FY 1991			105,732,000		
Unscheduled Balance to Complete After FY 1991			451,230,000		

1/ Local interests have also expended over $1,000,000 on emergency construction and are progressively providing necessary secondary work.

2/ Includes costs of the unstarted separable elements in this project.

3/ Reflects reduction of $2,363,000 assigned as savings and slippage, $252,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $1,082,000 reprogrammed from the project.

PHYSICAL DATA

Lands and Damages The 1968 authorization included lands for recreational areas.	
Pumping Plants (Number)	30
Capacity (Gallons per Minute)	20,623,000
Floodway Control & Diversion Structures (Number)	212
Relocations-Highways (Bridges)	2

Relocations-Railroads (Bridges)	56
Locks (Number)	25
Length (Feet)	60 to 400
Width (Feet)	20 to 56
Canals (Miles)	978
Levees (Miles)	990
Minimum to Maximum Height (Feet)	2 to 28

JUSTIFICATION:

Flood Control - The Central and Southern Florida project is primarily a flood control project in response to the maximum flood of record in 1947. Existing damages, without the project, were $59,693,000 ($366,903,000 at 1 October 1989 price levels). The 1947 flood frequency averages 1 in 25 years over the project area, with an average duration of 70 days. Minor floods occur almost yearly in the project area and major floods occur frequently. This situation is aggravated by wet antecedent conditions followed by heavy seasonal rainfall. The average degree of protection provided by the completed project will be a 10 year flood frequency protection. Upon completion, 2,853,700 acres will be protected. This encompasses 2,765,100 agricultural acres and 88,600 urban acres. The present value of property subject to flood damages is about $12.3 billion. Property types include residential, commercial, industrial, public, and agricultural. Average annual damages without the project would be $110,580,000 and $22,536,000 with the project. Damages attributable to urban property are 16.7 percent and 83.3 percent are attributable to rural property. The proportion of average annual damages prevented are 36.8 percent to existing development and 63.2 percent to future development. Flood damages incurred since project authorization through March, 1987 total $306,370,000; damages prevented by project works in place at times of flood total $474,793,000 and damages with no project works would have totaled $781,163,000. Water Supply - Under Public Law 90-483 (River and Harbor Act of 1968), an additional purpose, water supply, was added to the Central and Southern Florida project. The storage capacity of the entire project is 2,953,000 average annual acre-feet divided into approximately 1,600,000 acre-feet for urban use by 2020 and 740,000 acre-feet for agricultural use by 2020. The Everglades National Park is assured of 315,000 acre-feet per year and an additional 298,000 acre-feet in dry years. The pumping rate for irrigation of 590 square miles would yield approximately 917,850 acre-feet per year for agricultural use. Recurrent drought conditions with resultant low flows require supplemental irrigation to insure adequate crop yields. Average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$235,213,000
Municipal and Industrial Water Supply	25,664,000
Agricultural Water Supply	27,614,000
Recreation	11,109,000
Fish and Wildlife	238,000
Area Redevelopment	3,012,000
Total	$301,850,000

JUSTICATION: (Cont'd)

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate construction of canals, flood control structures, and relocation of railroad bridge in Shingle Creek	$ 280,000
Continue construction of remaining canals, initiate installation of pumping structure and flood control structure on West Palm Beach Canal	349,000
Continue construction of flood control structures and levees in Upper St. Johns River	10,153,000
Continue construction of Herbert Hoover Dike Levee & Revetment	4,166,000
Engineering and Design for Upper St. Johns River	80,000
Engineering and Design for Martin County	500,000
Engineering and Design for Herbert Hoover Revetment	532,000
Engineering and Design for W. Palm Beach Canal	550,000
Engineering and Design for South Dade County	428,000
Engineering and Design for St. Lucie Bank Stabilization	100,000
Engineering and Design for Shingle Creek	35,000
Engineering and Design for the Agricultural Areas	400,000
Supervision and Administration	1,227,000
Total	$18,800,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the authorizing legislation and the Water Resources Development Act of 1986 as applicable, the non-Federal sponsor must comply with the requirements listed below:

Herbert Hoover Dike & Levee	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 9,221,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	4,019,000	
Pay 15 percent of the first costs allocated to Herbert Hoover Dike and Levee separable element.	14,338,000	
Total	$27,578,000	

NON-FEDERAL COST: (Cont'd)

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
West Palm Beach Canal		
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 7,660,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	1,251,000	
Pay 12.8 percent of the first costs allocated to the West Palm Beach Canal separable element.	7,065,000	
Total	$ 15,976,000	
Upper St. Johns River Basin		
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 86,193,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	11,060,000	
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, and replacement of recreation facilities.	2,748,000	
Total	$100,001,000	

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NON-FEDERAL COST: (Cont'd)

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Shingle Creek		
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 2,930,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	2,410,000	
Pay 8.5 percent of the cost of the project assigned to flood control and bear all costs of operation, maintenance, and replacement of flood control facilities.	734,000	
Total	$ 6,074,000	
Misc. Completed Works Through 1986		
Provide lands, easements, rights of way, and modify or relocate buildings, utilities, roads, bridges and other facilities.	$ 27,467,000	
Cash Contribution	49,987,000	
Total	$ 77,454,000	
Total Non-Federal First Cost	$227,083,000	

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: Assurances of local cooperation have been accepted from the local sponsor, the South Florida Water Management District, for all works authorized under the Central and Southern Florida Flood Control project except for Small Boat Navigation features added in 1970 under Section 201 of the 1965 Flood Control Act and the Upper St. Johns River portion of the project. Local interests voluntarily executed a supplemental assurances contract which was approved by the District Engineer on 1 July 1972 for all modifications to the project except the features added in 1970. There is limited local interest in the Small Boat Navigation feature at this time. On-going studies in Kissimmee and St. Johns Rivers Basins are expected to produce a recommendation concerning the future status of the Small Boat Navigation feature. Assurances of local cooperation have been accepted from the St. Johns River Water Management District for the Upper St. Johns River portion and executed by Assistant Secretary of the Army (Civil Works) on 30 December 1987. A Local Cooperation Agreement for the Shingle Creek separable element is currently under negotiation and is scheduled for execution in November of 1990.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $930,000,000 is an increase of $58,000,000 over the latest estimate ($872,000,000) submitted to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$16,817,000
Design Changes	17,099,000
Post Contract Award and Other Estimating Adjustments	84,000
Total	$58,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The latest Environmental Impact Statement for the project was for the Upper St. Johns River separable element and was filed with the Environmental Protection Agency on 29 November 1985.

OTHER INFORMATION: Funds to initiate preconstruction planning and construction were appropriated in FY 1950. The House Appropriations Committee, in its report (H.R. No. 93-327) on the 1974 Public Works Appropriations Bill, directed the Corps of Engineers to prepare a report updating the economics and long-range costs for the project. As a result of the report, about $50 million of authorized project facilities were deleted or reclassified to the "inactive" status, as reflected in the FY 1985 Budget data submitted to Congress. In December 1983, about $47 million of authorized features were placed in the inactive category. In October 1984, an additional $2 million of authorized features were placed in the inactive category. This is a result of the continuous studies being conducted to identify features of this project that will qualify for reclassification.

OTHER INFORMATION: (Cont'd)

Long-term studies are being conducted through FY 1990 to determine a means of providing water supply deliveries to Everglades National Park (ENP) in conjunction with satisfying the future water supply requirements of the remainder of the Central and Southern Florida Project. Additionally, in response to ENP's request for immediate action, studies are being conducted and some construction is underway to provide interim relief pending completion of long-term studies.

The Supplemental Appropriations Act of 1984, Section 1302, authorized a 2-year field test of a new water delivery schedule to Everglades National Park. The Act also authorizes acquisition of agricultural lands which would be adversely impacted and construction of flood protection measures for homes in the area affected by the field test. The Water Resources Development Act of 1988 has extended the test period to January 1, 1992. A General Design Memorandum has been initiated to provide the design of required structural and operational modifications to the project; address the best method of mitigation impacts on adjacent developed areas; and access potential benefits to Everglades ecosystems. The General Design Memorandum is scheduled to be completed in FY 1990. Engineering and design for the Shingle Creek element was completed in 1989, with the St. Lucie Bank Stabilization due for completion in 1991. These will be considered for construction under the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986.

The Everglades National Park Protection and Expansion Act, signed 13 December 1989, authorizes construction of structural works required for improved water deliveries to the Everglades National Park, construction of flood protection works for the residential area in the East Everglades, and acquisition of 107,600 acres of privately owned wetlands in the East Everglades. The Department of the Interior and the State of Florida would acquire the land and the Secretary of the Army would construct all project modifications.

1 0 JAN 1990

APPROPRIATION TITLE: Construction, General - Local Protection Projects (Flood Control)

PROJECT: Dade County, Florida (Continuing)

LOCATION: Dade County is on the southeast coast of Florida. The project area consists of that part of the Atlantic shoreline of the county from Government Cut north to Bakers Haulover Inlet and at Haulover Beach Park.

DESCRIPTION: The project provides for a protective and recreational beach with a dune for beach erosion control and hurricane protection.

AUTHORIZATION: Flood Control Act of 1968, Water Resources Development Act of 1974, and Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: The remaining benefit-remaining cost ratio is not applicable because the initial construction and initial beach nourishment have been completed.

TOTAL BENEFIT - COST RATIO: Not applicable.

INITIAL BENEFIT - COST RATIO: 5.1 to 1 at 3 1/4 percent (FY 1977).

BASIS OF BENEFIT - COST RATIO: Benefits are from the June 1965 Dade County Beach Erosion Control and Hurricane Protection Report at fall 1964 price levels.

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Estimt'd Fed. Cost
Estimated Federal Cost		$50,900,000	
Estimated Non-Federal Cost		43,739,000	
Cash Contribution	$41,900,000		
Other	1,839,000		
Total Estimated Project Cost		$ 94,639,000	
Allocations to 30 September 1989		$38,554,000	
Conference Allowance for FY 1990		0	
Allocation for FY 1990		300,000 1/	
Allocations through FY 1990		38,854,000	76
Allocation Requested for FY 1991		2,400,000	81

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Breakwaters & Seawalls		
Jetty Extension	100	Aug 1976
Upgrading N. Jetty at Government Cut	100	Nov 1983
Jetty Rehabilitation at Haulover Inlet	100	Nov 1986
Beach Replenishment		
Initial Fill	100	Jan 1982
Renourishment		
North Portion	100	Aug 1987
Bal Harbour	0	Sep 1990
Lincoln Rd to Gov't Cut	0	Oct 1991
Remaining nourishment	0	Sep 1994

1/ Reflects $300,000 reprogrammed to the project.

20 JAN 1990

SUMMARIZED FINANCIAL DATA (Cont'd)	
Scheduled Bal. to Complete After FY 1991	9,646,000
Unscheduled Bal. to Complete After FY 1991	0

STATUS: (Cont'd)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	88	Sep 1994

PHYSICAL DATA

Jetty Extension	1
Initial Beach Fill	14,027,000 cy
Advance Nourishment	450,000 cy
Periodic Nourishment	1,752,000 cy

JUSTIFICATION: The Dade County shore, occupied by Miami Beach and a number of smaller communities, is highly developed and probably represents the most densely concentrated resort area in the world. The area is heavily visited by tourists throughout the year. The estimated current attendance for the project shore exceeds 15 million annually. Prior to the initial beach fill, recession of the shore caused loss of valuable beaches and property and placed seawalls and other structures under direct wave attack. At a number of locations, erosion undermined or threatened to undermine shorefront structures. Dade County lies in a zone of relatively high hurricane frequency, many of the most intense hurricanes of record having passed over or near the area. Hurricane tides and waves generated in the ocean and in Biscayne Bay by past hurricanes have caused major tidal flooding in the project area. A severe hurricane crossing the area on a critical path could cause a major flood disaster. The September 1926 hurricane devastated Miami and took 100 lives. The beaches of Dade County are of prime importance as tourist attractions. It is essential to the economy of the area that the beaches be maintained and preserved. Average annual benefits are as follows:

Annual Benefits	Amount
Beach Erosion Control	$ 2,823,000
Recreation	16,349,000
Flood Control (Hurricane Protection)	1,235,000
Total	$20,409,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate and complete renourishment (Lincoln Road to Government Cut)	$2,166,000
Engineering and Design	85,000
Supervision and Administration	149,000
Total	$2,400,000

19 JAN 1990

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the authorizing legislation, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance and Replacement Costs
Provide lands, easements, and rights of way.	$ 1,839,000	
Pay 41.3 percent of the costs allocated to initial nourish the reach south of Bakers Haulover Inlet; 50.2 percent of the costs to renourish the reach south of Bakers Haulover Inlet; and 30 percent to nourish and renourish the reach at Haulover Beach Park.	41,900,000	
Total Non-Federal Costs	$43,739,000	

STATUS OF LOCAL COOPERATION: The Dade County Board of County Commissioners, Miami, Florida, is the local sponsor. A Local Cooperation Agreement pursuant to Section 221 of the River and Harbor and Flood Control Act of 1970 (PL 91-611) was accepted by the Secretary of the Army on 16 January 1973. A supplemental agreement for reimbursement to the local sponsor for the Bal Harbour portion was approved on 30 June 1976.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $50,900,000 is an increase of $2,100,000 over the latest estimate ($48,800,000) submitted to Congress (FY 1989). This change includes the following:

Item	Amount
Price Escalation on Construction Features	$1,750,000
Design Changes	350,000
Total	$2,100,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) was filed with CEQ on 27 August 1976. A supplement to the EIS was filed with EPA on March 18, 1983. The provisions of Section 404 of the Clean Water Act were met by a Section 404(b)(1) Evaluation in June 1984.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1973 and initial construction funds were appropriated in Fiscal Year 1977. Section 69 of the Water Resources Development Act of 1974 authorized initial construction by non-Federal interests of the 0.85-mile segment immediately south of Bakers Haulover Inlet (Bal Harbour). Local interests have accomplished the work and reimbursement was provided by funds included in the 1976 Appropriations Act. The Water Resources Development Act of 1986 extended Federal participation from 10 years to the life of the project. When the period covered by the original assurances expires, a supplemental agreement will be negotiated with the local sponsors.

APPROPRIATION TITLE: Construction, General - Local Protection Project (Flood Control)

PROJECT: Four River Basins, Florida (Continuing)

LOCATION: The project area covers about 6,000 square miles within 15 counties in central and southwest peninsular Florida. The area is bounded on the north by the alignment of the Cross-Florida Barge Canal; on the east by the St. Johns River, Kissimmee River, and Fisheating Creek Basins; on the south by the Caloosahatchee River Basin; and on the west by the Gulf of Mexico, Myakka and Alafia River Basins, and other minor Gulf coastal basins. The project includes all or part of four main stream basins, the Hillsborough, Oklawaha, Withlacoochee, and Peace Rivers, and all of three smaller coastal basins north of Tampa, Florida, drained by the Pithlachascotee and Anclote Rivers, and Lake Tarpon.

DESCRIPTION: The flood control project has a design purpose of detention of flood waters through 113 miles of canals, 81 miles of levees, and 39 floodway control and diversion structures. The only work currently scheduled is recreation along the Hillsborough Bypass Canal.

AUTHORIZATION: Flood Control Act of 1962.

REMAINING BENEFIT - REMAINING COST RATIO: 2.7 to 1 at 3 1/8 percent.

TOTAL BENEFIT - COST RATIO: 2.0 to 1 at 3 1/8 percent.

INITIAL BENEFIT - COST RATIO: 1.6 to 1 at 3 1/8 percent (FY 1966).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest approved reports for various components of the project.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$160,000,000
Scheduled Construction	$73,395,000	
Unscheduled Construction	86,605,000	
Estimated Non-Federal Cost		135,800,000
Scheduled Construction	52,549,000	
Cash Contributions	16,117,000	
Other Cost	36,432,000	

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Relocations-Railroads (Bridges)	100	Sep 1978
Channels and Canals	100	Apr 1986
Levees and Floodwalls	100	Mar 1981
Recreation	70	Sep 1993
Floodway Control & Diversion Structure	100	Mar 1983
Buildings, Grounds and Utilities	100	Aug 1978

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SUMMARIZED FINANCIAL DATA (Cont'd)

			Accum. Pct. of Est. Fed. Cost
Estimated Non-Federal Cost			
Unscheduled Construction	$83,251,000		
Cash Contributions	17,383,000		
Other Costs	65,868,000		
Total Estimated Scheduled Construction Cost		125,944,000	
Total Estimated Unscheduled Construction Cost		169,856,000	
Total Estimated Project Cost		$295,800,000	
Allocations to 30 September 1989		$ 71,087,000	
Conference Allowance for FY 1990		800,000	
Allocation for FY 1990		169,000 1/	
Allocations through FY 1990		71,256,000	45
Allocation Requested for FY 1991		300,000	45
Scheduled Balance to Complete After FY 1991		1,839,000	
Unscheduled Balance to Complete After FY 1991		86,605,000	

STATUS: (Cont'd)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	98	Sep 1993 2/

1/ Reflects reduction of $77,000 assigned as savings and slippage, $8,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $546,000 reprogrammed from the project.

2/ For scheduled work only, remaining work is not scheduled pending a decision to construct these features.

PHYSICAL DATA

Relocations	
Railroads (bridges)	11
Levees	
Total Length (miles)	81
Minimum to Maximum Height (feet)	10 to 17
Canals (miles)	113
Floodway Control & Diversion Structures (number)	39

1933

JUSTIFICATION: The Four River Basins project maximum flood of record occurred in March 1960. Damages, without the project, were $13,441,000 ($51,083,000 at 1989 price levels). The 1960 flood frequency averaged 1 in 25 years over the project area, with an average duration of 28 days and a range from 7 days in the Gulf Coastal area to 60 days in the Oklawaha River Basin. Damaging floods occur almost yearly. In June 1974, a heavy rainfall, following wet conditions, resulted in substantial flood damages of $5,862,000 (1974 price levels). Existing project works prevented an estimated $7,572,000 (1974 price levels) in flood damages. The completed project would have prevented all flood damages. In May 1979, heavy rainfall resulted in flood damages of $18,364,300 (1979 price levels). Existing project works prevented an estimated $22,882,000 (1979 price levels). The completed project would have prevented $29,886,000 (1979 price levels). Flat terrain and inadequate natural drainage cause long-term retention of heavy rainfalls and result in frequent flooding throughout the project area.

The average degree of protection provided by the completed project will be a 10 year flood frequency with a 200 year flood frequency for Tampa. Upon completion, 490,820 acres will be protected. This encompasses 489,180 agricultural acres and 1,640 urban acres. Present value of property subject to flood damages is about $316,230,000 (1989 price levels). Property types include residential, commercial, industrial, mining and agricultural. Average annual flood damages without the project would be $13,642,300 (1989 price levels) and $2,273,400 (1989 price levels) with the project. Damages attributable without the project are 44.6 percent to urban property and 55.4 percent to rural property. The proportions of average annual damages prevented are 62.1 percent attributable to existing development and 37.9 percent to future development. Average annual benefits are as follow:

Annual Benefits	Amount
Flood Control	$23,682,000
Fish and Wildlife	498,000
Recreation'	9,675,000
Area Redevelopment	599,000
Total	$34,454,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Complete initial stage of construction of recreation facilities at Flatwoods Site.	$200,000
Engineering & Design	50,000
Supervision and Administration	50,000
Total	$300,000

NON-FEDERAL COST: The estimated cost to the local sponsor, the Southwest Florida Water Management District, to comply with the requirements of local cooperation for construction of the project as set forth in the authorizing legislation is $52,549,000.

Requirements of Local Cooperation	Payments During Construction, and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$36,432,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	4,981,000	
Pay 17 percent of the first costs, except engineering and design, allocated to flood control, and bear all cost of operation, maintenance, and replacement of flood control facilities.	11,136,000	
Total Non-Federal Costs	$52,549,000	

All separable elements initiated in the future will be formulated consistent with the cost sharing and financing concepts as reflected in the Water Resources Development Act of 1986. Local interests are required to operate and maintain the project upon completion.

STATUS OF LOCAL COOPERATION: Assurances of local cooperation from Southwest Florida Water Management District were accepted by the Federal Government on 12 November 1963. Supplemental assurances were accepted on 14 January 1972 in compliance with Public Law 91-646. Construction of this project was underway as of 1 January 1972; therefore, a Local Assurances Agreement required by Section 221 of the River and Harbor and Flood Control Act of 1970 (PL 91-611) was not necessary, but local interests voluntarily executed a supplemental assurances contract which was accepted by the District Engineer on 14 January 1972.

The Southwest Florida Water Management District has furnished a resolution declaring its intention to participate in the development of recreational facilities for the entire Four River Basins project, pursuant to the Federal Water Project Act of 1965, including entering into specific agreements for recreational purposes. A final agreement was executed on 20 April 1982.

STATUS OF LOCAL COOPERATION: (Cont'd)

A portion of the Four River Basins project known as Oklawaha River Basin is under the jurisdiction of the St. Johns River Water Management District. A Section 221 contract for local cooperation with the District was signed by the Secretary of the Army on 9 December 1976 and became effective on 31 December 1976.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $160,000,000 is an increase of $4,000,000 over the latest estimate ($156,000,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$3,982,000
Post Contract Award and Other Estimating Adjustments	18,000
Total	$4,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement for C-135 and the Lower Hillsborough Basin was filed with CEQ on 8 November 1974.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1965. Funds to initiate construction were appropriated in FY 1966.

A Florida law changed the boundary of the Southwest Florida Water Management District, effective on 1 January 1977, and assigned that portion of the Four River Basins project comprising the Oklawaha River Basin to the jurisdiction of the newly established St. Johns River Water Management District.

Studies indicated the need for additional recreation facilities, particularly for the Lower Hillsborough portion of the project. A post authorization change report for Lower Hillsborough Flood Detention Area and related areas, to cover substantial increases in recreational benefits and cost, was approved on 12 May 1978.

Regular ongoing studies are being conducted to identify features of the project that qualify for reclassification.

APPROPRIATION TITLE: Construction General - Local Protection Project (Flood Control)

PROJECT: Oates Creek, Richmond County, Georgia (Continuing)

LOCATION: Oates Creek, Richmond County, Georgia is located in the eastern portion of the State of Georgia in Richmond County near the City of Augusta, Georgia about 160 miles east of Atlanta.

DESCRIPTION: The recommended plan provides for the modification of approximately 12,300 feet of existing stream channel, which would consist of constructing certain bottom widths and side slopes, and concreting of the bottom and sides of certain portions of the channel and grassing the remainder. The plan also requires that 5 highway and 3 railroad bridges be replaced or modified.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 5.3 to 1 at 8 7/8 percent.

TOTAL BENEFIT - COST RATIO: 2.8 to 1 at 8 7/8 percent.

INITIAL BENEFIT - COST RATIO: 1.9 to 1 at 8 5/8 percent (FY 1988).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation approved in September 1986 at 1986 price levels.

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost (Corps of Engineers)		$ 9,900,000	
Estimated Non-Federal Cost		4,100,000	
Cash Contributions	$ 700,000		
Other Costs	3,400,000		
Total Estimated Project Cost		$14,000,000	

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	25	Jan 92

SUMMARIZED FINANCIAL DATA (cont'd)		Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1989	$2,397,000	
Conference Allowance for FY 1990	4,900,000	
Allocation for FY 1990	4,236,000 1/	
Allocations through FY 1990	6,633,000	69
Allocation Requested for FY 1991	$2,000,000	89
Scheduled Balance to Complete after FY 1991	1,267,000	
Unscheduled Balance to Complete after FY 1991	0	

1/ Reflects reduction of $473,000 assigned as savings and slippage, $50,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $141,000 reprogrammed from the project.

PHYSICAL DATA

RELOCATIONS:		
Railroad Bridge Modification	3	($ 687,000)
Highway Bridge Modification	5	(1,290,000)
CHANNELS:		
Channel Improvement	12,300 feet	
LEVEE:		
Length	1,800 feet	
Height	3-4 feet	

JUSTIFICATION: Oates Creek originates in East Central Georgia and flows easterly about 6 miles to the Savannah River. The drainage area of the basin consists of 4.7 square miles of urbanized area. The major problem along Oates Creek is frequent and severe flooding, which causes average annual damages of approximately $3,387,200. At present, there are 353 houses and apartments and 68 industrial and commercial buildings subject to flooding by a 100-year flood. The total damage to property from a 100-year flood is estimated at $30,000,000. Engineering studies and comparative cost analyses indicate that a combination of straightening the channel, widening the creek and lining the channel with grass or concrete is the most environmentally suitable and economical method for reducing the flood damage by reducing flood stage elevations. In addition, a low levee 3 to 4 feet high and 1800 feet long will be built to protect one neighborhood from flooding. Five highway and three railroad bridges will have to be relocated or modified to span the widened channel. With the project in place, almost 95% of the average annual damage will be eliminated. The average annual benefits are $3,302,100, all for flood control.

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FISCAL YEAR 1991: The requested amount will be applied as follows:

Complete Channel Improvements	$1,694,000
Engineering and Design	146,000
Supervision and Administration	160,000
Total	$2,000,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of the Local Cooperation	Payments during Construction and Reimbursements	Annual Operations, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, and dredge material disposal areas.	$2,110,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project.	1,290,000	
Pay 5% of the cost allocated to flood control and bear all cost of operation, maintenance, and replacement of flood control facilities.	700,000	$26,900
Total Non-Federal Costs	$4,100,000	$26,900

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: By letter dated 21 May 1986, the local sponsor, Richmond County, stated its intent to fulfill the proposed requirements of local cooperation. A Local Cooperation Agreement was signed on 10 March 1988. The current non-Federal cost estimate of $4,100,000, which includes a cash contribution of $700,000, is a decrease of $12,000 from the non-Federal cost estimate of $4,112,000 noted in the Local Cooperation Agreement, which included a cash contribution of $699,000. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $9,900,000 is the same estimate presented to Congress (FY 1990).

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1984. Initial construction funds were appropriated in FY 1988.

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Sowashee Creek, Meridian, Mississippi (Continuing)

LOCATION: The project is located in East Central Mississippi, Lauderdale County, in the City of Meridian, which is approximately 90 miles east of Jackson, Mississippi.

DESCRIPTION: The plan of improvement consists of a combination of channel enlargement and clearing and snagging over a reach of 10.5 miles. One railroad bridge and several highway roads and bridges and utilities will require modification for the channel improvement.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 3.6 to 1 at 8 5/8 percent.

TOTAL BENEFIT - COST RATIO: 1.1 to 1 at 8 5/8 percent.

INITIAL BENEFIT - COST RATIO: 1.3 to 1 at 8 5/8 percent (FY 1987).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation approved in February 1985 at October 1983 price levels.

SUMMARIZED FINANCIAL DATA

			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost (CofE)		$13,520,000	
Estimated Non-Federal Cost		6,542,000	
Cash Contribution	$ 980,000		
Other	5,562,000		
Total Estimated Project Cost		$20,062,000	
Allocations to 30 September 1989		4,046,000	
Conference Allowance for FY 1990		5,000,000	
Allocation for FY 1990		4,323,000 1/	
Allocations through FY 1990		8,369,000	62

		Accum. Pct. of Est Fed. Cost
Allocation Requested for FY 1991	$ 3,000,000	84
Scheduled Balance to Complete after FY 1991	2,151,000	
Unscheduled Balance to Complete after FY 1991	0	

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	38	Sep 1992

1/ Reflects reduction of $482,000 assigned as savings and slippage, $51,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $144,000 reprogrammed from the project.

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PHYSICAL DATA

RELOCATIONS: Railroad Bridge Modifications
1 ea $300,000

CHANNELS:

Channel enlargement	3.9 miles
Clearing and snagging	6.6 miles

JUSTIFICATION: The Sowashee Creek flood control project protects mostly commercial and industrial urban areas of Meridian, Mississippi. Sowashee Creek has a history of flooding, dating back to the 1930's. The maximum flood of record occurred in 1936 with damages at a 1983 price level of $54,000,000. Additional floods have occurred in 1938, 1951, 1964, 1972, and 1974. There are 1164 structures existing in the floodplain. There are 610 residential, 361 commercial, 102 industrial, and 91 other structures. Average annual existing damages without the project are $3,203,000 and $975,000 with the project. The project will reduce the existing damages about 70 percent. All flood damage prevention benefits are urban with 99 percent attributable to existing development and 1 percent to future development. Average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$2,184,000
Recreation	70,000
Total	$2,254,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Channel Modification	$2,720,000
Continue Engineering and Design	10,000
Continue Supervision and Administration	270,000
Total	$3,000,000

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NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$2,160,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges) and other facilities, where necessary in the construction of the project.	0 2,940,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	462,000	$ 1,000
Pay 5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, and replacement of flood control facilities.	950,000	50,000
Pay 25 percent of the total first cost allocated to the nonstructural portion of the project.	30,000	
Total Non-Federal Costs	$6,542,000	$51,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The local sponsor is the Pat Harrison Waterway District. The Local Cooperation Agreement was executed by Pat Harrison Waterway District and the Assistant Secretary of the Army (Civil Works) on 23 September 1987.

The current non-Federal cost estimate of $6,542,000, which includes a cash contribution of $950,000, is an increase of $1,836,000 from the non-Federal cost estimate of $4,706,000 which was provided the sponsor during preparation of the Local Cooperation Agreement, which included a cash contribution of $1,612,000. The non-Federal sponsor has indicated that it is financially capable and willing to contribute the non-Federal share of the cost. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting the financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $13,520,000 is an increase of $429,000 over the latest estimate of ($13,091,000) submitted to Congress (FY 1990). This change includes the following items.

Amount	Amount
Price Escalation on Construction Features	$105,000
Design Changes	135,000
Post Contract Award and other Estimating Adjustments	189,000
Total	$429,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency in October 1984.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1985. Funds to initiate construction were appropriated in FY 1987. Fish and wildlife mitigation costs are estimated at $60,000 ($10,000 Federal and $50,000 non-Federal).

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Tombigbee River and Tributaries, Mississippi and Alabama (Channel Improvement) (Continuing)

LOCATION: On tributaries of the Tombigbee River in northwest Alabama and northeast Mississippi.

DESCRIPTION: The plan of improvement is to improve 78.4 miles along 8 tributary streams of the Tombigbee River by means of erosion protection, clearing and snagging, channel enlargement, new channels, and cutoffs. Except for approximately 1 mile of improvements on West Fork, all of the improvements are completed or scheduled for completion.

AUTHORIZATION: Flood Control Act of 1958 and Supplemental Appropriations and Recision Act of 1980.

REMAINING BENEFIT - REMAINING COST RATIO: 2.4 to 1 at 3 percent.

TOTAL BENEFIT - COST RATIO: 2.1 to 1 at 3 percent.

INITIAL BENEFIT - COST RATIO: 1.7 to 1 at 3 percent (FY 1965).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation approved in October 1986 at October 1989 price levels for Luxapalila Creek. Benefits for the remainder of the project were approved in October 1955.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost			$38,364,000
Scheduled Construction		36,584,000	
Unscheduled Construction		1,780,000	
Estimated Non-Federal Cost			5,047,000
Scheduled Construction		4,986,000	
Cash Contributions	73,000		
Other Costs	4,913,000		
Unscheduled Construction		61,000	
Cash Contributions	13,000		
Other Costs	48,000		

			Accum. Pct. of Estmtd. Cost
Total Estimated Scheduled Construction Cost		$41,570,000	
Total Estimated Unscheduled Construction Cost		1,841,000	
Total Estimated Project Cost		43,411,000	
Allocation to 30 September 1989	24,566,000		
Conference Allowance for FY 1990	615,000		
Allocations for FY 1990	532,000 1/		
Allocations through FY 1990	25,098,000		64
Allocations Requested for FY 1991	1,000,000		67
Schedule Balance to Complete after FY 1991	11,134		
Unscheduled Balance to Complete after FY 1991	1,780,000		

1/ Reflects reduction of $59,000 assigned as savings and slippage, $6,000 sequestered in accordance with Gramm-Rudman-Hollings Act, and $18,000 reprogrammed from the project.

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Big Browns Creek	100	16 Nov 1965
Donivan Creek	100	18 Apr 1966
Twenty Mile Creek		
Mouth to Mi. 11.7	100	1 Aug 1967
Mi. 11.7 - 22.0	100	Dec 1989
Mantachie Creek	100	2 Nov 1967
James Creek	100	3 Feb 1969
Stanafer Creek	100	10 Feb 1969

	PERCENT COMPLETE	COMPLETION SCHEDULE 1/
Transition Sections - Donivan & Twenty Mile Creeks	100	27 Mar 1971
Luxapalila Creek	29	Sep 1992
Lower 2.1 Miles	(100)	(Nov 1973)
Remainder	(0)	(Sep 1993)
West Fork	0	Unscheduled
Entire Project	70	Sep 1993

1/ For scheduled work only, remaining work is unscheduled pending determination of need.

PHYSICAL DATA

CHANNELS: Improve 78.4 miles along 8 tributary streams of the Tombigbee River by means of erosion protection, clearing and snagging, channel enlargement, new channels, and cut-offs. Work has been completed on 49.1 miles of channel. Remaining work is along Luxapalila Creek (26.3 miles), Twenty Mile Creek (2.0 miles), and West Fork (1.0 miles).

JUSTIFICATION: Luxapalila Creek is located in northeast Mississippi and northwest Alabama. It rises in southern Marion County near Winfield, Alabama and flows in a southwesterly direction for 75 miles through Fayette and Lamar Counties, Alabama, and Lowndes County, Mississippi to join the Tombigbee River through the left bank at river mile 362.35. Floods occur along Luxapalila Creek with fairly frequent regularity. Damages along Luxapalila Creek are from urban flooding in Columbus, Mississippi, and rural flooding of agricultural and forested lands occur upstream of Columbus. Damages in Columbus are to residential structures, heavy industry, and extensive strip type commercial development. Under existing conditions, the 100-year flood will cause $73.3 million in damages at 1989 prices. The maximum flood of record on Luxapalila Creek occurred in April 1979 and caused about $614,000 in damages at October 1989 prices in the Columbus area.

West Fork is currently being reevaluated under the Tombigbee River and Tributaries Study.

Bank stabilization works have been completed along Twenty Mile Creek (mile 11.7 to 22.0) to control serious erosion problems.

JUSTIFICATION: (Cont'd)

The average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$3,285,000
Area Redevelopment	49,000
Fish and Wildlife	113,000
Total	$3,447,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate Construction of Luxapalila Creek	$ 792,000
Engineering and Design for Luxapalila Creek	106,000
Supervision and Administration for Luxapalila Creek	102,000
Total	$1,000,000

NON-FEDERAL COST: As set forth in the 1958 Flood Control Act, local interests must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Completed Streams		
Provide lands, easements and rights-of-way.	$152,000	
Provide cash contribution per 1958 Flood Control Act.	31,000	
Modify or relocate buildings, utilities, roads, highway bridges, and other facilities, where necessary in the construction of the project and bear all costs of operation, maintenance, and replacement of flood control facilities with the exception of Twenty Mile Creek from mile 11.7 to 22.0.	152,000	$84,000
Subtotal	$335,000	$84,000

NON-FEDERAL COST: (Cont'd)

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance and Replacement Costs
Luxapalila Creek		
Provide lands, easements and rights-of-way.	$2,408,000	
Provide Cash contribution per 1958 Flood Control Act.	42,000	
Modify or relocate buildings, utilities, roads, highway bridges, and other facilities, where necessary in the construction of the project.	1,411,000	
Provide costs allocated to flood control for non-structural and mitigation measures, and bear all costs of operation, maintenance, and replacement of flood control facilities.	790,000	$161,000
Subtotal	$4,651,000	
West Fork		
Provide lands, easements and rights-of-way.	$ 48,000	
Provide cash contribution per 1958 Flood Control Act.	13,000	
Bear all costs of operation, maintenance, and replacement of flood control facilities.		8,000
Subtotal	$ 61,000	
Total Non-Federal Costs	$5,047,000	$247,000

STATUS OF LOCAL COOPERATION: House Bill 179 was enacted into law during the 1962 regular session of the Mississippi Legislature. This law authorized creation of the Tombigbee River Valley Water Management District (TRVWMD) through which all the affected counties in Mississippi may participate in the project as a unit to assume the role of local sponsor.

STATUS OF LOCAL COOPERATION: (Cont'd)

The TRVWMD has been set up in accordance with provisions of the enabling legislation and has furnished satisfaction resolution covering the portion of the project in Mississippi. By resolution adopted in April 1973, TRVWMD gave assurances of its compliance with requirements of Public Law 91-646 (Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970). Lands and cash contributions have been furnished as required.

The Alabama Legislature, in its 1967 session, authorized formation of a public corporation to be named Tombigbee Valley Development Authority (TVDA) for the purpose of further development of the Tombigbee River and Tributary streams. The organization has been formed and in a referendum held 5 December 1967, the voters of Alabama authorized a bond issue not to exceed $10,000,000 to finance local interests' participation in this project and the Tennessee-Tombigbee Waterway project. Satisfactory resolution has been furnished. In February 1974, TVDA adopted a resolution pledging its compliance with provisions of Public Law 91-646.

The TRVWMD and TVDA have furnished lands, completed relocations and provided cash contributions as required for the completed work.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $38,364,000 is a decrease of $2,279,000 from the latest estimate ($40,643,000) submitted to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ 219,000
Design Changes	900,000
Post Contract Award and Other Estimating Adjustments	-2,669,000
Sundry	-648,000
Real Estate	-81,000
Total	-$2,279,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Impact Statement (EIS) for Luxapalila Creek was filed with the Council of Environmental Quality on 21 May 1975. A Final EIS covering the alternative and recommended plan for Luxapalila Creek is scheduled for filing with the Environmental Protection Agency in April 1990.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1962 and for construction in Fiscal Year 1965. As the result of erosion and sloughing of the streambanks along Twenty Mile Creek in Mississippi, corrective measures along Twenty Mile Creek in Lee, Itawamba, and Prentiss Counties between mile 11.7 and mile 22.0, were authorized by the Supplemental Appropriation and Recision Act of 1980.

APPROPRIATION TITLE: Construction, General - Reservoirs (Flood Control)

PROJECT: B. Everett Jordan Dam and Lake, North Carolina (Continuing)

LOCATION: The project is located on the Haw and New Hope Rivers about 2.5 miles north of Moncure, North Carolina, in Chatham, Durham, Orange, and Wake Counties.

DESCRIPTION: The project provides for construction of an earth dam 112 feet above streambed, 1,330 feet in length with an uncontrolled spillway and a gross storage of 753,500 acre-feet.

AUTHORIZATION: Flood Control Act of 1963

REMAINING BENEFIT - REMAINING COST RATIO: 3.0 to 1 at 3-1/8 percent.

TOTAL BENEFIT - COST RATIO: 1.5 to 1 at 3-1/8 percen.

INITIAL BENEFIT - COST RATIO: 2.7 to 1 at 3-1/8 percent (FY 1967).

BASIS OF BENEFIT - COST RATIO: Benefits are from the firm cost allocation approved March 1988 at 1978 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Total Appropriation Requirement			$143,400,000
Future Non-Federal Reimbursement			3,600,000
Estimated Federal Cost (Ultimate)			$139,800,000
Estimated Non-Federal Cost			3,700,000
Cash Contributions		$ 100,000	
Other Costs		0	
Reimbursements		3,600,000	
Water Supply	$3,600,000		
Total Estimated Project Cost			$143,500,000

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	95	Jun 1993

SUMMARIZED FINANCIAL DATA (Cont'd)

		Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1989	136,613,000	
Conference Allowance for FY 1990	3,012,000	
Allocation for FY 1990	2,604,000 1/	
Allocations through FY 1990	139,217,000	97
Allocation Requested for FY 1991	1,810,000	98
Scheduled Balance to Complete after FY 1991	2,373,000	
Unscheduled Balance to Complete after FY 1991	0	

1/ Reflects reduction of $291,000 assigned as savings and slippage, $31,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $86,000 reprogrammed from the project.

PHYSICAL DATA

Dam:
Type - Earth
Height - 112 feet (above streambed)
Length - 1,330 feet

Spillway:
Type - Uncontrolled chute on east abutment
Crest Length - 800 feet

Lands and Damages: Acres: 47,000. Type: Predominantly agricultural and timberland. Improvements: Typical farm units with greater part of area in Orange and Durham Counties rapidly changing from agricultural to homesites, subdivisions and subsistence units.

Reservoir Capacity:	Acre-feet
Flood Control	538,400
Water Supply and Quality Control	140,400
Sedimentation	74,700
Total	753,500

Relocations		
Roads	31.44 miles	($23,837,000)
Railroads	18.50 miles	(5,520,000)
Utility Lines	37.95 miles	(2,531,000)
Cemeteries	43 each	(202,000)
Total		($32,090,000)

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JUSTIFICATION: The project will provide improvements for flood protection, water-quality control, recreation and municipal and industrial water supply in the Cape Fear Basin, North Carolina. The average annual damages along the main stem of the Haw, Deep and Cape Fear Rivers are estimated at $9,724,000 at October 1989 price levels over the next 100 years if no flood control facilities are provided. The maximum flood of record, September 1945, would cause damages estimated at $79,595,000 without the B. Everett Jordan project under 1983 conditions of development and October 1989 price levels, of which $72,924,000 would be prevented by the project. This project would reduce average annual flood damages along the Cape Fear River by about 74 percent, provide a partial solution to low-flow regulation needs in the basin, and provide an adequate solution to about 35 percent of the long-term recreational opportunities of the basin. Average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$ 4,628,000
Water Quality Control	1,019,000
Water Supply	311,000
Recreation	4,213,000
Area Redevelopment	312,000
Total	$10,483,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Lands & Damages	$ 50,000
Complete Roads	357,000
Continue Recreation Facilities	1,038,000
Complete Cultural Resources Preservation	55,000
Planning, Engineering and Design	100,000
Construction Management	210,000
Total	$1,810,000

NON-FEDERAL COST: In accordance with the authorizing legislation, the State of North Carolina as non-Federal sponsor, must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Protect downstream channels from encroachments and obstructions which would adversely affect operation of the project.		

Division: South Atlantic District: Wilmington B. Everett Jordan Dam and Lake, NC

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STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Env
October 1971.

OTHER INFORMATION: Funds to initiate preconstruction pl
construction were appropriated in FY 1967.

Filling of Reservoir: Reservoir filling was initiated i
ceremonies were held on 1 May 1982.

Division: South Atlantic District: Wil

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EMENT: The final Environmental Impact Statement (EIS) was filed with CEQ in

te preconstruction planning were appropriated in FY 1964 and funds to initiate
Y 1967.

lling was initiated in September 1981 and completed in February 1982. Dedication

APPROPRIATION TITLE: Construction, General - Local Protection Projects (Flood Control)

PROJECT: Carolina Beach and Vicinity, North Carolina (Continuing)

LOCATION: The project is located in New Hanover County, about 15 miles southeast of Wilmington, North Carolina, on the peninsula which separates the lower Cape Fear River from the Atlantic Ocean.

DESCRIPTION: The project provides for construction of a dune with a crown width of 25 feet at elevation 15 feet above mean low water, a berm with a crown width of 50 feet at elevation 12 feet above mean low water, a rock revetment at elevation 12 feet along the northern 2,050 feet fronted by a 130 foot wide berm at elevation 8 feet and Federal participation in the cost of beach nourishment for a period not to exceed 50 years from year of initial placement. The area south of Carolina Beach, a total of 17,800 feet is unscheduled. Total length of project is 31,800 feet.

AUTHORIZATION: Flood Control Act of 1962.

REMAINING BENEFIT - REMAINING COST RATIO: The remaining benefit-remaining cost ratio for the Carolina Beach Portion is not applicable because the initial construction has been completed. The remaining benefit-remaining cost ratio for the area south of Carolina Beach is 3.1 to 1 at 3 percent.

TOTAL BENEFIT - COST RATIO: 3.9 to 1 at 3 percent.

INITIAL BENEFIT - COST RATIO: 3.2 to 1 at 3 percent (FY 1965).

BASIS OF BENEFIT - COST RATIO: Benefits for the Carolina Beach portion are based on the November 1973 "Reanalysis of the Carolina Beach Restoration Project" at 1973 price levels. Hurricane damage prevention benefits for the Area South are based on the November 1967 Design Memorandum at 1967 price levels and recreation benefits are based on a 1985 analysis deflated with consumer price index to 1967 price levels.

SUMMARIZED FINANCIAL DATA			
Estimated Federal Cost			$16,450,000
Scheduled Construction		$10,696,000	
Unscheduled Construction		5,754,000	
Estimated Non-Federal Cost			11,050,000
Scheduled Construction		7,440,000	
Cash Contribution	$7,440,000		
Other Cost	0		

STATUS: (1 Jan 1990)	PERCENT COMPLETE 1/	COMPLETION SCHEDULE 1/
Carolina Beach Portion	86	Apr 1991
Area South	0	Unscheduled
Entire Project	86	Unscheduled

1/ For scheduled work only, remaining work is unscheduled pending a decision to construct these features.

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SUMMARIZED FINANCIAL DATA (Cont'd)

				Accum. Pct. of Est. Fed. Cost
Unscheduled Construction		3,610,000		
Cash Contribution	3,610,000			
Other Costs	0			
Total Estimated Scheduled Construction Cost			18,136,000	
Total Estimated Unscheduled Construction Cost			9,364,000	
Total Estimated Project Cost			$27,500,000	
Allocations to 30 September 1989			$9,089,000	
Conference Allowance for FY 1990			330,000	
Allocation for FY 1990			285,000 1/	
Allocation through FY 1990			9,374,000	88
Allocation Requested for FY 1991			1,190,000	99
Scheduled Balance to Complete After FY 1991			132,000	
Unscheduled Balance to Complete After FY 1991			5,754,000	

1/ Reflects reduction of $32,000 assigned as savings and slippage, $3,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $10,000 reprogrammed from the project.

PHYSICAL DATA
Carolina Beach

	Dune	Integral Berm	Stone Revetment	Frontal Berm
Elevation	15 feet above MLW	12 feet above MLW	12 feet above MLW	8 feet above MLW
Crown Width	25 feet	50 feet	-	-
Length	14,000 feet	14,000 feet	2,050 feet	2,050 feet

Area South of Carolina Beach

	Dune	Integral Berm
Elevation	15 feet above MLW	12 feet above MLW
Crown Width	25 feet	50 feet
Length	17,800 feet	17,800 feet

JUSTIFICATION: The project will provide improvements for hurricane protection, beach erosion control, and recreation in the urban area of the city of Carolina Beach and Kure Beach, North Carolina. These areas experienced heavy hurricane flood damages in the hurricanes of 1944, 1954, 1955, and 1958. Hurricane Hazel, the maximum hurricane of record, which occurred in 1954, caused $4,664,000 and $1,218,000 in damages to Carolina Beach and Kure Beach, respectively, based on 1954 price levels. A recurrence of this type hurricane at present price levels (October 1989) and July 1974 development would cause damages of $36,621,000 and $9,565,000 to Carolina Beach and Kure Beach, respectively. Average annual benefits are as follows:

Annual Benefits	Amount
Hurricane Damage Prevention	$ 916,000
Recreation	925,000
Navigation	35,000
Total	$1,876,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Nourishment of Carolina Beach	$ 989,000
Planning, Engineering and Design for Carolina Beach	43,000
Planning, Engineering and Design for Area South	83,000
Construction Management	75,000
Total	$1,190,000

1956

NON-FEDERAL COST: Carolina Beach - The actual cost to the town of Carolina Beach, North Carolina, the local sponsor for the Carolina Beach portion, of complying with the requirements of local cooperation for initial construction of the project as set forth in the authorizing legislation was $4,227,000. The non-Federal sponsor must also provide the following amounts for periodic beach nourishment in accordance with the authorizing legislation.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Pay 100 percent of the future nourishment costs allocated to hurricane and storm damage reduction and operation, maintenance, and replacement costs.	$ 260,000	$2,000
Pay 50 percent of the future nourishment costs allocated to beach erosion.	2,953,000	0
Total Non-Federal First Costs - Future Nourishment	$3,213,000	$2,000

NON-FEDERAL COST: (Cont'd)

Area South of Carolina Beach - In accordance with the cost sharing and financing concepts reflected in the Water Resource Development Act of 1986, the town of Kure Beach, North Carolina, as non-Federal sponsor for the area south of Carolina Beach, must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, including borrow areas.		
Modify or relocate buildings, utilities, roads, and other facilities, where necessary in the construction of the project.		
Pay 35 percent of the first costs allocated to hurricane and storm damage reduction and bear all costs of operation, maintenance, and replacement of hurricane and storm damage reduction facilities.	$3,610,000	$18,000
Total Non-Federal Costs	$3,610,000	$18,000

STATUS OF LOCAL COOPERATION: The town of Carolina Beach has complied with all the terms of local cooperation to date including the first and second increments of future nourishment. On 1 November 1983 a local occupancy tax went into effect in New Hanover County. Seventy-five percent of the revenues collected from this tax must be used for beach erosion control. A Section 221 local assurance agreement is not required since the project was under construction prior to 1 January 1972.

No construction work has been done on the "Area South of Carolina Beach" portion. The North Carolina Department of Water and Air Resources advised in 1968 that local interests were unable to provide their share of non-Federal cash contribution toward construction and between 1968 and 1974, local interests had not expressed interest in the project or any willingness or ability to comply with local cooperation requirements. As a result, the "Area South of Carolina Beach" was reclassified to the "inactive" category. Due to increased development the Town of Carolina Beach expressed interest in the Wilmington Beach portion of the project and indicated that it would be able to provide the local sponsorship required as stated by a letter dated 18 February 1985. The "Area South of Carolina Beach," including Wilmington and Kure Beaches, was reclassified to the "active" category on 6 June 1985. Kure Beach, which is adjacent to and south of Wilmington Beach, has expressed interest in sponsoring the entire "Area South of Carolina Beach," including Wilmington and Kure Beaches, and indicated that it would be able to provide the local sponsorship required as stated by letter dated 22 January 1985. A local cooperation agreement will be executed by ASA(CW) prior to initiation of construction.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $16,450,000 is an increase of $150,000 over the latest estimate ($16,300,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$190,000
Sundry	-40,000
Total	$150,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A draft Environmental Impact Statement (EIS) was filed with CEQ 15 November 1974. A revised draft EIS was filed on 17 April 1981 and a final EIS was filed on 17 July 1981 for the Carolina Beach Portion. The EIS for the Area South of Carolina Beach is currently unscheduled pending completion of the economic reevaluation.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1964 and funds to initiate construction were appropriated in FY 1965. Kure Beach and the adjoining area have experienced considerable erosion since the fall of 1985. One of the most critical areas is in the vicinity of the "Riggings" Condominiums. This area is outside the southern limits of the project and is not eligible for Federal assistance at this time. An economic reevaluation of the Area South of Carolina Beach is currently underway to determine the feasibility of pursuing this portion of the project.

APPROPRIATION TITLE: Construction, General - Reservoirs (Flood Control)

PROJECT: Falls Lake, North Carolina (Continuing)

LOCATION: The project is located on the Neuse River about 10 miles north of Raleigh, North Carolina, in Durham, Granville, and Wake Counties.

DESCRIPTION: The project provides for construction of an earth dam 92 feet above streambed, 1,915 feet in length with an uncontrolled spillway and a gross storage of 335,620 acre-feet.

AUTHORIZATION: Flood Control Act of 1965.

REMAINING BENEFIT - REMAINING COST RATIO: 3.6 to 1 at 3-1/4 percent.

TOTAL BENEFIT - COST RATIO: 1.5 to 1 at 3-1/4 percent.

INITIAL BENEFIT - COST RATIO: 2.1 to 1 at 3-1/4 percent (FY 1970).

BASIS OF BENEFIT - COST RATIO: Benefits are from the General Design Memorandum approved in March 1973 at 1971 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Total Appropriation Requirement			$182,000,000
Future Non-Federal Reimbursement			33,900,000
Estimated Federal Cost (Ultimate)			$148,100,000
Estimated Non-Federal Cost			33,900,000
Cash Contributions		0	
Other Costs		0	
Reimbursements		$33,900,000	
Water Supply	$13,900,000		
Recreation and Fish and Wildlife Enhancement	20,000,000		
Total Estimated Project Cost			$182,000,000

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	84	Jul 1994

Division: South Atlantic

District: Wilmington

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SUMMARIZED FINANCIAL DATA (Cont'd)

		Accum. Pct. of Est. Fed. Cost.
Allocations to 30 September 1989	$152,328,000	
Conference Allowance for FY 1990	10,000,000	
Allocation for FY 1990	8,646,000 1/	
Allocations through FY 1990	160,974,000	88
Allocation Requested for FY 1991	2,500,000	90
Scheduled Balance to Complete After FY 1991	18,526,000	
Unscheduled Balance to Complete After FY 1991	0	

1/ Reflects reduction of $965,000 assigned as savings and slippage, $103,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $286,000 reprogrammed from the project.

PHYSICAL DATA

Dam:
Type - Earth
Height - 92 feet (above streambed)
Length - 1,915 feet

Spillway:
Type - Uncontrolled chute on north abutment
Crest length - 100 feet

Lands and Damages: Acres: 39,876. Type: Predominantly agricultural and timberland. Improvements: Typical farm units with greater part of area in Durham and Wake Counties rapidly changing from agricultural to homesites, subdiviions, and subsistence units.

Reservoir Capacity:	Acre-feet
Flood Control	243,050
Water Supply and Quality Control	106,330
Sedimentation	25,070
Total	374,450

Relocations		
Roads	16.24 miles	($17,295,000)
Railroads	6.79 miles	(4,772,000)
Utility Lines	54.42 miles	(4,734,000)
Cemeteries	35 each	(335,000)
Total		($27,136,000)

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JUSTIFICATION: The project will provide improvements for flood protection, water supply, water-quality control, and recreation in the Neuse River Basin, North Carolina. The average annual damages along the main stem of the Neuse River below the Falls damsite are estimated at $7,998,000 over the next 100 years if no flood control facilities are provided. A major flood in the Neuse River Basin in October 1964 caused agricultural and urban damages along the main stem of the Neuse River estimated at $3,796,000 (1964 price levels) which would amount to $6,799,000 under 1985 conditions of development and October 1989 price levels, of which $3,879,000 would be prevented by the project. The maximum flood of record, July 1919, would cause damages estimated at $27,068,000 without the Falls Lake project under 1985 conditions of development and October 1989 price levels, of which $15,339,000 would be prevented by the project. Construction of the Falls Lake project is the initial water-resource improvement planned for the Neuse River Basin. The City of Raleigh has expended $40,100,000 on construction and expansion of facilities for obtaining a reliable supply of water from the Neuse River at Falls Lake. The latest expansion increased the capacity of the treatment facilities to 62.5 million gallons per day (MGD). The facility was put in operation in the fall of 1984 and is anticipated to provide an adequate supply of water until the mid-1990's, at which time the plant would be expanded to an ultimate capacity of 100 MGD. The Falls Lake project will reduce average annual flood damages along the main stem of the Neuse River below the damsite by about 50 percent, alleviate a critical water supply problem in the basin by providing a source for municipal and industrial water supply for the City of Raleigh and counties in the area, provide a solution to the immediate and long term low flow regulation needs, and provide additional recreational opportunities in the basin. Average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$1,560,000
Water Quality Control	380,000
Water Supply	300,000
Recreation	3,550,000
Total	$5,790,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Lands and Damages	$ 400,000
Continue Reservoir Clearing	600,000
Complete Roads, Railroads and Bridges	72,000
Continue Recreation Facilities	469,000
Complete Buildings, Grounds and Utilities	259,000
Planning, Engineering and Design	300,000
Construction Management	400,000
Total	$2,500,000

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NON-FEDERAL COST: In accordance with the authorizing legislation, the State of North Carolina as non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Administer project land and water area for recreation and fish and wildlife enhancement.		
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance and replacement of recreation facilities.	$19,300,000	$1,247,000
Pay 25 percent of the first costs allocated to fish and wildlife enhancement and bear all costs of operation, maintenance and replacement of fish and wildlife facilities.	700,000	93,000
Pay all costs allocated to municipal and industrial water supply and bear all costs of operation, maintenance, and replacement of municipal and industrial water supply facilities.	13,900,000	98,000
Total Non-Federal Costs	$33,900,000	$1,438,000

In addition, local interests have incurred costs of $40,100,000 for water supply in the project area.

STATUS OF LOCAL COOPERATION: A contract between the City of Raleigh and the United States for water-supply storage space was executed by the City and the District Engineer on 23 February 1972 and the contract was approved by the Secretary of the Army on 11 September 1972. A contract agreement for cost sharing of recreational lands and facilities in accordance with Public Law 89-72 was signed by the Governor of North Carolina and the District Engineer on 15 August 1972 and was approved by the Secretary of the Army on 11 September 1972. A local assurance agreement pursuant to Section 221 of the River and Harbor and Flood Control Act of 1970 (PL 91-611) was signed by the Governor of North Carolina and the District Engineer on 10 October 1972.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $182,000,000 is an increase of $14,000,000 over the latest estimate ($168,000,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ 2,696,000
Design Changes	9,633,000
Post Contract Award and Other Estimating Adjustments	1,671,000
Total	$14,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final environmental impact statement was filed with CEQ on 15 April 1971. An updated final statement was filed with CEQ on 1 May 1974.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1966. Land acquisition only funds were appropriated in FY 1970 and were allotted in FY 1971. Funds to initiate construction were appropriated in FY 1971.

Reservoir Filling: Filling was initiated on 13 January 1983 and the lake reached normal pool elevation of 250.1 feet m.s.l. on 7 December 1983.

Reservoir Storage: A survey of Falls Lake in 1982 for future sedimentation accounting purposes subsequently resulted in a discovery of reservoir storage shortages. Areas and capacities of the lake are somewhat less than originally determined. Additional lake mapping and technical studies completed in 1985 quantified the storages and assessed the effects of shortages on intended purposes of the project. Water quality requirements and fish habitat needs in the river below the dam were finalized by the State and new low-flow discharges were established. Studies to determine the effects and impacts of storage capacity shortages were completed and new operation procedures were put into effect in 1986. Falls Lake is being operated on an interim basis at a rule curve elevation of 251.0 feet m.s.l. which is 0.9 foot higher than normal during the period from April through September. An Environmental Assessment has been completed that states that the new plan of operation and the rule curve elevation of 251.0 feet m.s.l. have no significant impact upon the environment. A supplement to Design Memorandum #2 addressing means to alleviate the shortage was approved in March 1989 and is the basis for any future studies. The supplement recommended raising the top of the dam by 1.5 feet, the conservation pool by 1.4 feet, and the top of the flood control pool by 1.8 feet in order to restore the lost storage capacity. This approved plan restores all of the lost water supply and flood control storage and about 42% of the lost water quality storage. The current sediment storage was determined to be sufficient based on updated sedimentation rates. Design is currently underway to implement the recommended plan.

APPROPRIATION TITLE: Construction, General - Local Protection Projects (Flood Control)

PROJECT: Portugues and Bucana Rivers, Puerto Rico (Continuing)

LOCATION: The improvements are in and near Ponce on the Portugues and Bucana Rivers on the south coast of Puerto Rico.

DESCRIPTION: Project provides for two multiple-purpose reservoirs for flood control, water supply, general recreation, and fish and wildlife enhancement; enlargement of 5.7 miles of Bucana River and 2 miles of Portugues River; a 1.3 mile diversion channel connecting the Portugues River to lower Bucana River; and debris basins at the Bucana and Portugues Rivers. The Cerrillos Dam and Portugues and Bucana Channel improvements are the only segments currently scheduled.

AUTHORIZATION: Flood Control Act of 1970.

REMAINING BENEFIT - REMAINING COST RATIO: 4.4 to 1 at 5 5/8 percent.

TOTAL BENEFIT - COST RATIO: 1.4 to 1 at 5 5/8 percent.

INITIAL BENEFIT - COST RATIO: 1.6 to 1 at 5 5/8 percent (FY 1975).

BASIS OF BENEFIT - COST RATIO: Benefits are from the July 1973 Design Memorandum, General Design Memorandum Phase 1, Plan Formulation and Site Selection report at July 1973 price levels.

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Est. Fed. Cost
Estimated Total Appropriation Requirement		$339,000,000	
Scheduled Construction	$ 276,183,000		
Unscheduled Construction	62,817,000		
Future Non-Federal Reimbursement		107,960,000	
Scheduled Construction	66,360,000		
Unscheduled Construction	41,600,000		
Estimated Federal Cost (Ultimate)		231,040,000	
Scheduled Construction	209,823,000		
Unscheduled Construction	21,217,000		

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Channels and Canals		
Lower Channels	100	Aug 1978
Upper Bucana Channel	100	Jun 1983
Upper Portugues Channel	90	Sep 1994
Bucana River Debris Basin	100	Jun 1987
Portugues Debris Basin	55	Sep 1993
Dams		
Cerrillos Structure & Machinery	65	Nov 1992
Portugues Structure & Machinery	0	Unscheduled

Division: South Atlantic   District: Jacksonville   Portugues and Bucana Rivers, PR

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SUMMARIZED FINANCIAL DATA (Cont'd)

				Accum. Pct. of Est. Fed. Cost
Estimated Non-Federal Cost			$202,660,000	
Scheduled Construction		$148,291,000		
Cash Contribution	3,815,000			
Other Costs	78,116,000			
Reimbursement	66,360,000			
Unscheduled Construction		54,369,000		
Cash Contribution	9,273,000			
Other Costs	3,496,000			
Reimbursement	41,600,000			
Total Estimated Scheduled Construction Cost			$358,114,000	
Total Estimated Unscheduled Construction Cost			75,586,000	
Total Estimated Project Cost			$433,700,000	
Allocations to 30 September 1989			$218,652,000	
Conference Allowance for FY 1990			18,800,000	
Allocation for FY 1990			17,100,000 1/	
Allocations through FY 1990			235,752,000	70
Allocation Requested for FY 1991			18,200,000	75
Scheduled Balance to Complete After FY 1991			22,231,000	
Unscheduled Balance to Complete After FY 1991			62,817,000	

STATUS: (Cont'd)	PERCENT COMPLETE	COMPLETION SCHEDULE
Recreation		
Channels	10	Sep 1992
Cerrillos	0	Sep 1992
Portugues	0	Unscheduled
Entire Project	60	Sep 1994 2/

1/ Reflects reduction of $1,814,000 assigned as savings and slippage, $193,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $307,000 reprogrammed to the project.

2/ For scheduled work only, remaining work is not scheduled pending a decision to construct these features.

PHYSICAL DATA

	Portugues River	Cerrillos River
Dam		
Type	Concrete arch	Earth & rock-filled
Height	272 feet	323 feet
Crest Length	1,500 feet	1,555 feet
Spillway		
Type	Ungated concrete ogee 150 feet wide	Ungated rock cut 400 feet wide
Reservoir Capacity (Acre-Feet)		
Flood Control	8,342	17,065
Water Supply	14,000	25,200
Sediment	2,841	5,635
Total	25,183	47,900

Portugues River Channel Enlargement	2.1 miles
Bucana River Channel Enlargement	5.7 miles
Diversion Channel connecting Portugues River to the Lower Bucana River	1.3 miles

JUSTIFICATION: Water supply is a need met by the Portugues and Bucana Rivers project. The water storage capacity in Lake Cerrillos is 25,200 acre-feet while ongoing studies have established a preliminary capacity for Lake Portugues of 14,000 acre-feet. Primary uses of the water supply will be municipal and industrial. The 1954 flood caused damages of $1,297,000 ($6,991,000 at 1989 price levels). Minor flooding occurs almost yearly and major floods occur every 5 years on the average. The mountainous terrain above Ponce permits rapid runoff into the rivers which overflow in the lower elevation flood plains in Ponce causing loss of life and extensive property damage. Other major damaging floods occurred in 1961 ($4,931,000 at 1989 price levels), 1970 ($2,176,000 at 1989 price levels), and in 1975 ($35,253,000 at 1989 price levels) and in 1985 ($33,517,000 at 1989 price levels). The average degree of protection provided by the completed project will be the standard project flood frequency. Upon completion, 6,415 acres will be protected, including 4,310 agricultural acres, 1,855 urban acres, and 250 acres undeveloped. Present value of property subject to flood damages is $624,069,000. Average annual flood damages preventable are all attributable to existing urban development. Average annual benefits are as follows:

Annual Benefits	Amount
Flood control	$22,209,000
Water supply	12,412,000
Recreation	1,088,000
Area redevelopment	1,299,000
Total	$37,008,000

JUSTIFICATION: (Cont'd)

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Construction of Cerrillos Dam Structure, Gates, Access Road, and Spillway Bridge	$ 9,520,000
Continue Cerrillos Clearing	1,000,000
Continue Construction of Portugues Debris Basin	4,615,000
Initiate Lake Cerrillos Recreation Construction	813,000
Continue Lower Bucana Channel Recreation Construction	75,000
Engineering and Design	527,000
Engineering and Design for Portugues Dam	500,000
Supervision and Administration	1,150,000
Total	$18,200,000

NON-FEDERAL COST: The estimated cost to the local sponsor, the Commonwealth of Puerto Rico Department of Natural Resources, of complying with the requirements of local cooperation for construction of the improvement as set forth in the authorizing legislation is $148,291,000.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, and rights-of-way.	$ 58,083,000	
Modify or relocate buildings, utilities, roads, bridges, and other facilities, where necessary in the construction of the project.	20,003,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	3,845,000	
Pay all costs allocated to municipal and industrial water supply and bear all costs of operation, maintenance, and replacement of municipal and industrial water supply facilities.	66,360,000	
Total Non-Federal Costs	$148,291,000	

NON-FEDERAL COST: (Cont'd)

Local interests are also required to operate and maintain the project upon completion. The estimated annual cost of operation and maintenance is $1,573,200.

STATUS OF LOCAL COOPERATION: The Commonwealth of Puerto Rico Department of Natural Resources is the local sponsor. The following contract agreements are required pursuant to Section 221 of the River and Harbor and Flood Control Act of 1970 (PL 91-611):

Contract		Actual or Anticipated Execution Date
Section 221	Cerrillos Reservoir	15 March 1982
	Channels	22 July 1974
Water Supply	Cerrillos Reservoir	15 March 1982
Recreation	Cerrillos Reservoir	15 March 1982
	Channels	24 June 1987
LCA	Portugues Reservoir	1st Qtr 1992

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $339,000,000 is an increase of $26,000,000 over the latest estimate ($313,000,000) submitted to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 2,514,000
Design Changes	3,637,000
Post Contract Award and Other Estimating Adjustments	19,849,000
Total	$26,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with CEQ on 25 February 1974.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1972. Funds to initiate construction were appropriated in FY 1975.

1968

1 0 JAN 1990

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Roanoke River Upper Basin, Virginia, Headwaters Area (Continuing)

LOCATION: The project is located on the Roanoke River in the city of Roanoke, Virginia.

DESCRIPTION: The project includes about 6.4 miles of channel widening along the 10 miles of river through the city of Roanoke, Virginia. Channel widening will be accomplished with the construction of a benched channel above the elevation of the average streamflow. Other flood damage reduction features include floodproofing at one location, training walls to prevent floodwater intrusion into low areas along the river, replacement of two low-level bridges which constrict streamflows, and a flood warning system. Recreation facilities consist of a 5-mile recreation trail along the project reach and access and parking areas.

AUTHORIZATION: Water Resources Development Act of 1986 and Energy and Water Development Appropriation Act of 1990.

REMAINING BENEFIT - REMAINING COST RATIO: 1.5 to 1 at 8-7/8 percent.

TOTAL BENEFIT - COST RATIO: 1.14 to 1 at 8-7/8 percent.

INITIAL BENEFIT - COST RATIO: 1.3 to 1 at 8-7/8 percent (FY 1990).

BASIS OF BENEFIT - COST RATIO: Benefits are from the General Design Memorandum submitted in May 1989 at 1988 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$19,900,000
Estimated Non-Federal Cost		12,400,000
Cash Contributions	$ 2,567,000	
Other Costs	9,833,000	
Total Estimated Project Cost		$32,300,000

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	0	Mar 1994

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SUMMARIZED FINANCIAL DATA (Cont'd)

		Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1989	$ 1,746,000	
Conference Allowance for FY 1990	489,000	
Allocation for FY 1990	478,000 1/	
Allocations through FY 1990	2,224,000	11
Allocation Requested for FY 1991	2,300,000	23
Scheduled Balance to Complete After FY 1991	15,376,000	
Unscheduled Balance to Complete After FY 1991	0	

1/ Reflects reduction of $28,000 assigned as savings and slippage, $17,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $34,000 reprogrammed to the project.

PHYSICAL DATA

Project Features:		Relocations:	
Channel Excavation	34,000 linear feet	Utility	3,880 linear feet
Training Wall	2,000 linear feet	Roads	2,000 linear feet
Paved Recreation Trail	25,900 linear feet	Overhead Line	6,350 linear feet
Parking/Access Areas	4 each	Buildings	13 each
Riprap	98,200 tons	Bridges	2 each

Land Acquisition (acres):	
Total Rights-of-Way Requirement	295
Flood Control Rights-of-Way	185
Disposal Areas (Temporary)	40
Recreation Rights-of-Way (Separable)	20
Rights-of-Way Underwater	110

1970

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JUSTIFICATION: The project will provide improvements for flood protection and recreation. Most of the property that would be protected is industrial and commercial with a value of $680,000,000. The average annual damages in the project area are estimated at $5,777,000 at October 1988 price levels and 1988 level of development over the next 50 years if no flood control facilities are provided. The project would reduce these damages by $3,476,000. The maximum flood of record, November 1985, caused damages estimated at $112,424,000 under 1985 conditions of development and price levels. Damages at current levels of development and October 1988 price levels would be $119,997,000. Floodplain development is not promoted by the project. Return on investments by local businesses is adversely affected by the flood problem. Firms have to use resources to repair and attempt floodproofing that could be used for expansion and modernization.' In this respect, return on investment is suppressed. The project will have a beneficial effect on a variety of firms and increase return on investment throughout the floodplain. Average annual benefits are as follows:

Annual Benefits	Amount
Flood Damage Protection	$3,073,800
Recreation	343,800
Total	$3,417,600

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate Channels	$1,734,000
Initiate Recreation Facilities	239,000
Planning, Engineering and Design	167,000
Construction Management	160,000
Total	$2,300,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide all lands, easements, and rights-of-way including suitable spoil disposal areas	$7,180,000	
Modify or relocate buildings, utilities, roads and other facilities except railroad bridges, where necessary for construction of the project.	2,653,000	

NON-FEDERAL COST: (Cont'd)

Requirements of Local Cooperation (Cont'd)	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Pay 25 percent of the cost of the flood warning system (partially offset by a credit for lands, easements, rights-of-way, and relocations).	$ 22,000	
Pay 5 percent of the total cost allocated to flood control in cash in addition to all lands, easements, rights-of-way and relocations, and bear all costs of operation, maintenance, and replacement of flood control facilities	1,431,000	$90,000
Pay one-half of the separable cost allocated to recreation (partially offset by a credit for lands, easements, rights-of-way and relocations) and bear all costs of operation, maintenance and replacement of recreation facilities.	1,083,000	8,000
Pay 25 percent of the cost of the non-structural floodproofing of the sewage treatment plant (partially offset by a credit for lands, easements, rights-of-way and relocations).	31,000	
Total Non-Federal Costs	$12,400,000	$98,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The City of Roanoke is the project sponsor. On 11 April 1989 the voters of the City of Roanoke approved the sale of $7.5 million worth of bonds to pay Roanoke's required cash contribution, acquire lands that are not currently owned and pay for relocation of bridges and utilities. The City has prepared real estate base maps, identified landowners and held meetings with landowners. Preliminary discussions have been held with the sponsor concerning the Local Cooperation Agreement (LCA) and the current schedule is to execute the LCA in February 1990.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $19,900,000 is an increase of $2,200,000 over the latest estimate ($17,700,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$2,200,000
Design Changes	119,000
Post Contract Award and Other Estimating Adjustments	-438,000
Sundry	319,000
Total	$2,200,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final environmental impact statement was filed with the Environmental Protection Agency in February 1985. A finding of no significant impact for design changes was signed on 30 June 1989.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1986 and funds to initiate construction were appropriated in FY 1990. The project was modified by the Energy and Water Development Appropriation Act of 1990 to increase the total estimated project cost to $29,000,000 (Oct 88 PL). The Roanoke Logperch, which is located in the project area, was listed as an endangered species effective 18 September 1989 and will be monitored during project construction.

APPROPRIATION TITLE: Construction General - Multiple Purpose Power Projects

PROJECT: Richard B. Russell Dam and Lake, Georgia and South Carolina (Continuing)

LOCATION: On the Savannah River about 275 miles above the mouth, 16 miles southeast of Elberton, Georgia and between the existing J. Strom Thurmond and Hartwell Lakes.

DESCRIPTION: A concrete gravity-type dam, flanked by earth embankments with maximum height of 200 feet above the river. Total length of 5,616 feet, consisting of a 1,884-foot concrete section, and embankments of 3,732 feet. Gate controlled spillway with design capacity of 800,000 c.f.s. Installation of 300 megawatts (MW) of conventional power, 300 MW of reversible pump-turbine units for a total capacity of 600 MW.

AUTHORIZATION: Flood Control Act of 1966, modified by the Water Resources Development Act of 1976 and the Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 9.6 to 1 at 3 1/4 percent.

TOTAL BENEFIT - COST RATIO: 4.0 to 1 at 3 1/4 percent.

INITIAL BENEFIT - COST RATIO: 2.0 to 1 at 3 1/4 percent (FY 1972).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation approved in October 1981 at 1981 price levels.

SUMMARIZED FINANCIAL DATA		Accum. Pct. of Est. Fed. Cost	STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Total Appropriation Requirement	$549,000,000				
Future Non-Federal Reimbursement	$524,178,000		Entire Project	92	Oct 1993
Estimated Federal Cost (Ultimate)	$ 24,822,000				

1974

SUMMARIZED FINANCIAL DATA (Cont'd)

			Accum. Pct. of Est. Fed. Cost
Estimated Non-Federal Cost		$524,178,000	
Reimbursements:			
Power	$503,569,000		
Recreation	20,609,000		
Total Estimated Project Cost		$549,000,000	
Allocations to 30 Sep 1989		$487,300,000	
Conference Allowance for FY 1990		24,000,000	
Allocation for FY 1990		20,751,000 1/	
Allocations through FY 1990		508,051,000	92
Allocation Requested for FY 1991		$ 19,000,000	96
Scheduled Balance to Complete After FY 1991		21,949,000	
Unscheduled Balance to Complete After FY 1991		0	

1/ Reflects reduction of $2,315,000 assigned as savings and slippage, $247,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $687,000 reprogrammed from the project.

PHYSICAL DATA

Dam	
Type	Concrete Gravity, flanked by earth embankments earth embankments
Maximum Height	200 feet
Length	Concrete Section 1,884 feet; embankments 3,732 feet; total 5,616 feet
Spillway	
Type	Gate Controlled
Design Capacity	800,000 cfs

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Relocations

Roads - 19.5 miles	($32,537,000)
Railroads - (SCL RR) 9.1 miles	($29,847,200)
Cemeteries, Util. Lines and Water Supply Pump Stations	($ 4,986,800)

Lands and Damages

Acres - 53,112
Type - Predominantly timber and agricultural
Improvements - Typical farm units

Initial Power Installation

4 Conventional Units
@ 75 MW and 4 pump storage units
@ 75 MW; 600 MW
Normal Average Head - 144 feet

Reservoir Capacity (Acre-feet)

Flood Control	140,000
Power	126,800
Dead Storage	889,400
Total	1,166,200

JUSTIFICATION: The initial 600 MW installation including pumped storage, will help meet the increased power requirements and rapid growth demands in this region. The output can be marketed and fully utilized immediately upon project completion in Federal Energy Regulatory Commission (FERC) supply areas 21, 22 and 23. This includes all of South Carolina, most of North Carolina, Georgia, Alabama, and parts of Mississippi and Florida. The FERC has stated repeatedly the need for this power source. This project will be an integral unit of the plan for development of the Savannah River Basin for flood control, navigation, power, and allied purposes. The recreational facilities will serve an area within a large zone of influence surrounding the three-lake complex of J. Strom Thurmond, Hartwell and Richard B. Russell lakes. The estimated initial attendance at the project will approach 1,000,000 and should exceed 4,600,000 in the early 2000's. Average annual benefits are as follows:

Annual Benefits	Amount
Power	$146,912,000
Recreation	3,597,000
Fish and Wildlife	71,000
Flood Control	177,000
Area Redevelopment	4,212,000
Total	$154,807,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Fish & Wildlife Activities	$ 107,000
Continue Pumped Storage Installation	10,786,000
Continue Recreational Facilities	4,315,000
Complete Cultural Resources and Permanent Operating Equipment	192,000
Engineering and Design	2,100,000
Supervision and Administration	1,500,000
Total	$19,000,000

NON-FEDERAL COSTS: The costs allocable to power are reimbursable, are preliminary, and will be reviewed and adjusted based on construction costs when the project becomes operational.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Capital cost allocated to power.	$503,569,000	$3,584,571
Pay, contribute in kind, or repay (repayment not to exceed 50 years) with interest, one-half of the separable costs allocated to recreation.	20,609,000	
Bear all costs of operation maintenance, and replacement of recreational facilities.	0	216,553
Total Non-Federal Costs	$524,178,000	$3,801,124

STATUS OF LOCAL COOPERATION: Agreements, in accordance with Public Law 89-72, with the States of Georgia and South Carolina have been executed and were approved by the Secretary of the Army 20 May 1974. Responsibility for repayment of power costs rests with the Southeastern Power Administration pursuant to Federal Laws.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $549,000,000 is a decrease of $6,000,000 from the latest estimate ($555,000,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features including Future Inflation	-$ 1,225,000
Design Changes	- 12,267,000
Post Contract Award and Other Estimating Adjustments	1,201,000
Sundry	6,291,000
Total	-$ 6,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) on conventional installation was submitted to CEQ on 31 May 1974. A supplement on water quality to the final EIS was filed with CEQ in May 1976. The final EIS on pumped storage was filed with the Environmental Protection Agency (EPA) in Oct 1979. The supplement on fish and wildlife mitigation to the final EIS was filed with the EPA in December 1981. A supplemental to the final EIS on pumped storage is scheduled to be filed in early Fiscal Year 1991.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1968. Funds to initiate land acquisition were appropriated in FY 1971 and were allocated in FY 1972. Initial construction funds were appropriated in FY 1975.

The Water Resources Development Act of 1986 authorized Fish and Wildlife mitigation at a total cost of $20,200,000 with an estimated first Federal cost of $20,150,000 and an estimated first non-Federal cost of $50,000, including utilization for purposes of fish and wildlife habitat mitigation of such Federal lands as may be identified by the Secretary of the Army. The Secretary and the State of South Carolina, in consultation with the United States Fish and Wildlife Service, shall identify those Federal lands at J. Strom Thurmond Lake to be utilized for purposes of fish and wildlife habitat mitigation.

A preliminary injunction halting the installation of pumped storage was issued on 23 May 1988. A hearing on the merits of our appeal for injunctive relief was held on 8 December 1988 in the 4th Circuit Court of Appeals in Richmond, Virginia. On 24 January 1989 the Richmond, VA 4th Circuit Court of Appeals granted injunctive relief to the Corps of Engineers, to only install the reversible pump turbines. Testing and operation is contingent on demonstrating through the supplemental EIS process that units can be operated in a reasonable manner without unduly impacting existing fish habitat.

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SOUTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operations and Maintenance, General, FY 1991

1. Navigation

a. Channels and Harbors

The program request of $94,560,000 provides for essential work on 74 harbor and channel projects named in the list which follows. The work to be accomplished under this activity consists of maintaining the navigation channels and harbors and anchorages of coastal harbors and waterways by means of dredging, snagging, bank revetment, and operation and repair of navigation structures, all as authorized in the laws adopting river and harbor projects.

OBLIGATIONS

PROJECT	ACTUAL FY 1989	ESTIMATED FY 1990	ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
ALABAMA				
Bayou La Batre	119,000	100,000	679,000	Variation in dredging requirements.
Dauphin Island Bay	299,000	404,000	206,000	Variation in dredging requirements.
Dog and Fowl Rivers	20,000	200,000	429,000	Variation in dredging requirements.
Gulf Intracoastal Waterway (Mobile)	2,522,000	4,913,000	2,766,000	Variation in dredging requirements.
Mobile Harbor	5,681,000	8,554,000	13,401,000	Variation in dredging requirements.
Perdido Pass Channel	58,000	450,000	343,000	Periodic dredging.
FLORIDA				
AIWW (Jacksonville)	0	0	2,356,000	Periodic dredging.
Apalachicola Bay	76,000	27,000	188,000	Periodic dredging.
Blackwater River	0	0	8,000	Periodic dredging.
Canaveral Harbor	4,963,000	3,182,000	2,315,000	Variation in dredging requirements.
Carrabelle Harbor	0	0	277,000	Periodic dredging.
Channel - Naples to Big Marco Pass	0	0	907,000	Periodic dredging.
Charlotte Harbor	183,000	959,000	1,123,000	Variation in dredging requirements.
East Pass Channel	101,000	0	465,000	Periodic dredging.
Fernandina Harbor	767,000	752,000	910,000	Variation in dredging requirements.

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SOUTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operations and Maintenance, General, FY 1991

1. Navigation (Cont.)
   a. Channels and Harbors (Cont.)

OBLIGATIONS

PROJECT	ACTUAL FY 1989	ESTIMATED FY 1990	ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
Fort Myers Beach	10,000	0	925,000	Periodic dredging.
Fort Pierce Harbor	506,000	462,000	651,000	Variation in dredging requirements.
IWW, Caloosahatchee-Anclote Rivers	63,000	739,000	366,000	Variation in dredging requirements.
IWW, Jacksonville to Miami	904,000	1,667,000	1,110,000	Variation in dredging requirements.
Jacksonville Harbor	399,000	5,246,000	1,223,000	Variation in dredging requirements.
Johns Pass	32,000	300,000	330,000	Variation in dredging requirements.
LaGrange Bayou	21,000	7,000	60,000	Variation in dredging requirements.
Long Boat Pass	50,000	1,000,000	800,000	Variation in dredging requirements.
Miami Harbor	204,000	288,000	257,000	Variation in dredging requirements.
New Pass	65,000	500,000	1,205,000	Variation in dredging requirements.
Palm Beach Harbor	930,000	944,000	944,000	Variation in dredging requirements.
Panama City Harbor	93,000	486,000	31,000	Variation in dredging requirements.
Pensacola Harbor	980,000	208,000	107,000	Variation in dredging requirements.
Ponce de Leon Inlet	2,801,000	965,000	114,000	Variation in dredging requirements.
Port Everglades Harbor	21,000	0	67,000	Periodic dredging.
Port St. Joe Harbor	5,000	44,000	637,000	Variation in dredging requirements.
St. Lucie Inlet	364,000	0	130,000	Periodic dredging.
St. Augustine Harbor	0	0	827,000	Periodic dredging.
Tampa Harbor	885,000	5,437,000	2,196,000	Variation in dredging requirements.
GEORGIA				
AIWW (Savannah)	2,013,000	1,032,000	947,000	Variation in dredging requirements.
Brunswick Harbor	1,067,000	3,457,000	3,533,000	Variation in dredging requirements.
Savannah Harbor	3,629,000	5,208,000	5,173,000	Variation in dredging requirements.
Savannah River Below Augusta	180,000	287,000	245,000	Project condition surveys and master plans in FY 90 and FY 90.

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SOUTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operations and Maintenance, General, FY 1991

1. Navigation (Cont.)

a. Channels and Harbors (Cont.)

PROJECT	OBLIGATIONS ACTUAL FY 1989	ESTIMATED FY 1990	ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
MISSISSIPPI				
Biloxi Harbor	1,273,000	73,000	726,000	Variation in dredging requirements.
Gulfport Harbor	416,000	2,058,000	2,302,000	Variation in dredging requirements.
Pascagoula Harbor	516,000	4,049,000	4,398,000	Variation in dredging requirements.
Pass Christian Harbor	0	0	323,000	Periodic dredging.
Wolf and Jordan Rivers	0	0	181,000	Periodic dredging.
NORTH CAROLINA				
AIWW (Wilmington)	4,679,000	3,903,000	5,437,000	Variation in dredging requirements.
Beaufort Harbor	106,000	331,000	416,000	Variation in dredging requirements.
Bogue Inlet and Channels	301,000	630,000	675,000	Variation in dredging requirements.
Carolina Beach Inlet	442,000	247,000	579,000	Variation in dredging requirements.
Channel - Back Sound to Lookout Bight	155,000	100,000	393,000	Variation in dredging requirements.
Far Creek	9,000	600,000	946,000	Variation in dredging requirements.
Lockwoods Folly	347,000	500,000	535,000	Variation in dredging requirements.
Manteo (Shallowbag) Bay	5,526,000	4,842,000	5,117,000	Variation in dredging requirements.
Morehead City Harbor	1,873,000	1,704,000	1,983,000	Variation in dredging requirements.
New River Inlet	546,000	202,000	538,000	Variation in dredging requirements.
New Topsail Inlet	383,000	0	520,000	Periodic dredging.
Ocracoke Inlet	8,000	260,000	278,000	Periodic dredging.
Rollinson Channel	0	0	395,000	Periodic dredging.
Silver Lake Harbor	670,000	900,000	786,000	Variation in dredging requirements.
WW - Pamlico Sound to Beaufort Harbor	269,000	0	245,000	Periodic dredging.
Wilmington Harbor	3,868,000	4,168,000	4,612,000	Variation in dredging requirements.

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APPROPRIATION TITLE: Operations and Maintenance, General, FY 1991

1. Navigation (Cont.)

a. Channels and Harbors (Cont.)

OBLIGATIONS

PROJECT	ACTUAL FY 1989	ESTIMATED FY 1990	ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
PUERTO RICO				
Arecibo Harbor	5,000	0	650,000	Periodic dredging.
Mayaquez Harbor	1,000	0	200,000	Periodic dredging.
Ponce Harbor	0	0	165,000	Periodic dredging.
San Juan Harbor	2,261,000	0	1,000,000	Periodic dredging.
SOUTH CAROLINA				
AIWW (Charleston)	2,025,000	3,045,000	2,282,000	Variation in dredging requirements.
Charleston Harbor	2,936,000	2,456,000	2,750,000	Variation in dredging requirements.
Cooper River, Charleston Harbor	3,775,000	3,079,000	3,246,000	Increased payment to Power Authority in FY 89.
Folly River	260,000	438,000	535,000	Variation in dredging requirements.
Georgetown Harbor	2,884,000	2,267,000	1,859,000	Variation in dredging requirements.
Jeremy Creek	54,000	19,000	1,000	Periodic dredging.
Little River Inlet	61,000	627,000	144,000	Variation in dredging requirements.
Murrells Inlet	124,000	132,000	146,000	Variation in dredging requirements.
Port Royal Harbor	469,000	1,272,000	894,000	Variation in dredging requirements.
Shipyard River	54,000	560,000	608,000	Variation in dredging requirements.
Town Creek	393,000	380,000	444,000	Variation in dredging requirements.
Projects Maintained Periodically	681,000	664,000	0	
TOTAL - Channels and Harbors	67,381,000	87,324,000	94,560,000	

SOUTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operations and Maintenance, General, FY 1991

1. Navigation (Cont.)

b. Locks, Dams, and Canals

The program request of $35,009,000 provides for the operational requirements of eight canalized waterways. Requirements include: operation and ordinary maintenance of project facilities; labor, supplies, materials, and parts for day-to-day functioning; and periodic maintenance, repairs, and replacements.

OBLIGATIONS

PROJECT	ACTUAL FY 1989	ESTIMATED FY 1990	ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
ALABAMA				
Alabama-Coosa Rivers	8,212,000	5,895,000	4,057,000	Construct training dikes and perform rock excavation on Lower Alabama River in FY 89 and FY 90.
Black Warrior and Tombigbee Rivers	13,786,000	13,420,000	9,292,000	Variation in dredging requirements and lock repairs in FY 89 and FY 90.
ALABAMA AND GEORGIA				
Apalachicola, Chattahoochee & Flint	3,609,000	3,771,000	3,766,000	
ALABAMA AND MISSISSIPPI				
Tennessee-Tombigbee Waterway	19,049,000	18,426,000	13,675,000	Variation in dredging requirements.
FLORIDA				
Apalachicola, Chattahoochee and Flint Rivers (see Alabama and Georgia)				

SOUTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operations and Maintenance, General, FY 1991

1. Navigation (Cont.)

b. Locks, Dams, and Canals (Cont.)

OBLIGATIONS

PROJECT	ACTUAL FY 1989	ESTIMATED FY 1990	ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
Cross Florida Barge Canal	3,112,000	2,096,000	2,072,000	Repair Rodman Dam in FY 89.
Okeechobee Waterway	2,930,000	1,881,000	1,638,000	Repair St. Lucie Lock in FY 89.
Oklawaha River	73,000	59,000	28,000	Increased snagging and clearing in FY 89 and FY 90.
NORTH CAROLINA				
Cape Fear River above Wilmington	577,000	719,000	481,000	Repair electrical gate operating equipment at the locks in FY 90.
TOTAL - Locks, Dams, and Canals	51,348,000	46,267,000	35,009,000	
TOTAL - NAVIGATION	118,729,000	133,591,000	129,569,000	

2. Flood Control

a. Reservoirs

The program request of $5,094,000 provides for operation and maintenance of four reservoirs and for scheduling flood control reservoirs operations at privately owned dams on the Coosa River, AL.

MISSISSIPPI				
Okatibbee Lake	907,000	1,150,000	1,371,000	Increased dam maintenance in FY 91.

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SOUTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operations and Maintenance, General, FY 1991

2. Flood Control (Cont.)

a. Reservoirs (Cont.)

OBLIGATIONS

PROJECT	ACTUAL FY 1989	ESTIMATED FY 1990	ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
NORTH CAROLINA				
B. Everett Jordan Dam and Lake	929,000	1,200,000	1,039,000	Repair gates and stilling basin in FY 90.
Falls Lake	1,022,000	1,200,000	1,048,000	Repair intake towers in FY 90.
W. Kerr Scott Dam and Reservoir	1,234,000	1,700,000	1,537,000	Repair stilling basin in FY 90.
Scheduled Reservoir Operations, Coosa River, AL	89,000	95,000	99,000	
TOTAL - Reservoirs	4,181,000	5,345,000	5,094,000	

b. Channel Improvements, Inspections, and Miscellaneous Maintainance

The program request of $5,031,000 provides for the maintenance requirements of two local flood protection projects and inspection of 85 completed projects during the year.

PROJECT	ACTUAL FY 1989	ESTIMATED FY 1990	ESTIMATED FY 1991
FLORIDA			
Central and Southern Florida	4,804,000	4,901,000	4,627,000

HURRICANE HUGO

Mr. **Bevill**. Very good, General. Seeing all the hurricane damages, I want to commend you and your Division for what you've done in this cleanup. You all have done a great job.

Have you spent any of your own emergency money doing all this work, in addition to what you received from FEMA?

General **Bunker**. Sir, we spent a relatively limited amount of emergency funds because there was not substantial damage to our Corps projects at any place along Hugo's path. We spent a good bit of time, effort, and money doing such things as clearing the harbor in Charleston to let the Navy get its ships back in, and clearing the Intercoastal Waterway, which has taken us a substantial period of time. We had one project at the mouth of one of the involved rivers north of Charleston where we had to put the berms back together. Cleanup and recovery efforts have gone well in all areas. Although the Carolinas experienced considerable damage, total recovery for Puerto Rico and the Virgin Islands will require several years. Those governments are working hard to reestablish the trade and tourist industry long before total recovery.

GAP LEGISLATION

Most of the other work, sir, has been in support of the Federal Emergency Management Agency and has been done with FEMA emergency funds. One exception to that, sir, as you remember, Congress recently passed the GAP Legislation which was designed to provide for an emergency response capability by the Corps for 10 days after the period that a Governor has requested Federal emergency help. That is 100 percent Federally funded and to be used only for the preservation of life and property.

We did exercise that legislation, sir, in Puerto Rico. Puerto Rico, basically in the San Juan area, was without water for nine days, and during the period between the time of the Governor's request and the Presidential declaration, we provided about 2 million gallons of water for the Puerto Rican people, averting what I think was a very serious situation from the lack of water in the area.

That GAP legislation, sir, has had a lot of interest in the after-action studies between the Federal Emergency Management Agency and the Corps, and my perception is that the administrative rules presently associated with its use will probably be expanded over the next year in order to provide us a little bit more flexibility in using that authority for the real type of disaster that we had with Hurricane Hugo.

It is not needed, sir, where we're going in after the fact to do damage survey reports to provide Federal money and Federal mitigation effort, but it is really necessary in those instances where the individual human beings on the ground at the scene of a disaster need immediate assistance that the Federal Government can provide.

Mr. **Bevill**. How much you are requesting for replacement funds as a result of what you had to spend on Hugo?

General **Bunker**. The money, sir, that we have spent in all four regions the Virgin Islands, Puerto Rico, South Carolina, and North Carolina, amounts to about one and a half million dollars from our

Corps Emergency Operations funds under Public Law 84-99. Our expenditures for all other work have exceeded $50 million, but those funds are being provided to us directly from FEMA funds, so they don't get involved in my Civil Works funding.

Mr. BEVILL. So you're not asking for any replacement yourself, then?

General BUNKER. No, sir, I am not.

Mr. BEVILL. All right.

COOSA RIVER FLOODING

I just received a call a few minutes ago from one of my constituents down on the Coosa River. He lives seven miles north of Gadsden. He has been using a boat to get to his home since Friday. He says that between his house and the Henry Neeley Dam, the water is down to practically normal, and that something is wrong somewhere because his whole neighborhood is still flooded and has been flooded since Friday. We have contacted the District Engineer in Mobile and asked him to look into it. I just wanted you to be aware of that.

General BUNKER. I have it, sir. Generally, the situation is that the upper reaches of the river have recently received about 10 inches of rainfall in the Weiss and Neely Henry pool areas. The Neely Henry pool channel capacity to allow runoff is about 50,000 cubic feet per second. The Logan Martin pool channel, just below Neely Henry has a capacity of 90,000 cubic feet per second which allows the water to flow out of the pool more rapidly even when maximum discharges are released at the Neely Henry dam.

Mr. BEVILL. All right, good.

General BUNKER. Sir, if I may, my understanding from my Emergency Management Office is that yesterday and last night the rain was just a little bit lighter than was really anticipated, but there is still more coming. So we have a little bit of a regression in the flood levels in some areas, but there is more rain on the way and the ground is still saturated. So I think the situation is not over yet.

Mr. BEVILL. Apparently not. As a matter of fact, he went on to say, that the flood level is three feet above the normal level in that area on the Coosa, and actually it's about seven feet over the easement.

General BUNKER. I think we are going from drought of record to flood of record in some areas, sir.

Mr. BEVILL. Yes.

BAYOU LA BATRE, ALABAMA

Would you explain why the estimated cost of PED for the Bayou LaBatre, Alabama project has increased from $325,000 to $680,000, and the completion date has slipped one year?

General BUNKER. Sir, the major reasons for the increase in cost is associated with additional work, primarily geotechnical, surveying, and environmental requirements that we have determined must be undertaken in order to complete the design of that project. We identified these additional needs during the preparation of a detailed plan of work.

The delay sir, I believe is a combination of a delay associated with that additional work that we have to do, and a reanalysis of the time required to prepare the final design documents.

VALLEY CREEK, WARRIOR RIVER AND TRIBUTARIES, ALABAMA

Mr. BEVILL. Why has the completion date for the Valley Creek, Warrior River and Tributaries, Alabama feasibility study slipped from January, 1991 to September, 1991?

General BUNKER. Sir, it has been delayed eight months, of which five months is associated with delays in receiving in-kind services from our local partners; surveys and borings from the non-Federal partner; and the other three months is because of additional requirements for our review of existing conditions.

Mr. BEVILL. All right.

TENNESSEE-TOMBIGBEE WATERWAY WILDLIFE MITIGATION, ALABAMA AND MISSISSIPPI

When will the management plan for the Tennessee-Tombigbee Waterway mitigation lands be completed?

General BUNKER. Sir, if I may, work on the plan for the existing lands component of the Tennessee-Tombigbee Wildlife Mitigation project has been underway for about a year and is scheduled for completion in May 1990. The management plan for the separable lands will be developed in increments coinciding with the specific geographic location specified in the Water Resources Development Act of 1986. Since the management plan must specifically address the resources available at each separable land increment, the management plan will be completed within one year after each increment is approved for aquisition. This will allow initiation of management of the mitigation lands as soon as possible before the total project is completed in September 1996. We have received funds for Fiscal Year 1990 to accomplish real estate activities up to but not including acquisition. We have requested additional funding for Fiscal Year 1991, about $20 million, to continue land purchases.

Mr. BEVILL. I was informed by the Director of the Game and Fish Division of the Alabama Department of Conservation and Natural Resources, a gentleman that I know has been there for over 30 years, Mr. Charles Kelley, that there is an important tract of land available for sale. He says it is critical that you acquire it. I believe it's 5,000 acres of wetlands in the Mobile area. I just wanted to call that to your attention because I've known this gentleman for at least 30 years and have a lot of confidence in his judgment.

General BUNKER. Sir, Mobile District, the day before yesterday, held a public hearing to get input from the public and from State and local agencies, and from all individuals or entities that believe they have property that could be available for this purpose.

Mr. BEVILL. Good.

General BUNKER. I will ensure that the property you mentioned has been included in the lands that Mobile is dealing with at the moment.

Mr. BEVILL. You know, it is the responsibility of the Government to carry out the mitigation program. It has not been the Corps' fault that the program has been delayed. We have found it difficult to find the money. But where we have a critical situation we certainly want to give it priority and acquire those lands. I'm hoping we can carry out the Government's obligation on all of it.

General **Bunker**. Yes, sir.

Mr. **Bevill**. We all believe in mitigation, and we want to do what we can as fast as we can on the mitigation.

General **Bunker**. We are moving out very expeditiously on that at the moment, sir.

BLACK WARRIOR AND TOMBIGBEE RIVERS, VICINITY OF JACKSON, ALABAMA

Mr. **Bevill**. Why has the completion date for the Black Warrior and Tombigbee Rivers Project, in the vicinity of Jackson, Alabama, slipped from December, 1991 to June, 1993?

General **Bunker**. Sir, the delay is due to delays in resolving he navigation problems on the Tombigbee River near Jackson. The port facility design cannot be completed until the navigation channel alignment is complete. The channel design was completed in the fall of 1988, but the $22 million cost was determined to be excessive. Additional alternative solutions have been considered which are more in line with the original $8.2 million cost estimate. The current plan includes minor channel modifications and modifications to the fender system protecting the north pier of the railroad bridge. The fender design is being finalized and coordination with the Norfolk Southern Railroad is required. The channel and port design are scheduled for completion in January 1991.

MOBILE HARBOR, ALABAMA

Mr. **Bevill**. When will the Mobile Harbor, Alabama deepening project be completed? Are additional funds required to complete the project?

General **Bunker**. Sir, the contract is due to be completed in June of this year.

Mr. **Bevill**. I understand that the Federal court has just made a decision on the dredging contract for Mobile Harbor, and that now you will have to reprogram funds to proceed. I need to know how much you need and when you need it.

General **Bunker**. Sir, that court decision involves an operation and maintenance contract. The deepening contract that you initially asked about is due, by contract, to be completed in June of this year. The contractor is going to finish early, but we don't know what date yet. He has until June to finish the new deepening.

Mr. **Bevill**. But he will finish before June?

General **Bunker**. Yes, sir.

Mr. **Bevill**. As I recall, that's getting it down to about 45 feet?

General **Bunker**. Yes, sir.

The O&M contract, sir, that you then asked about, which is the one that has been in litigation, the judge has ruled on it. The total cost increase as a result of the judge's ruling is $4 million, of which $3 million is required this year for the contract and an additional $1 million is required in the next Fiscal Year. I have already directed internal reprogramming within the Division and will attempt to recover, out of the Corps of Engineers' overall O&M funds for this year, that $3 million when needed elsewhere. Mobile District presently anticipates that they will be able to complete the effort that is necessary in the preaward evaluation of the contractor by next Monday, assuming that the contractor gets his papers in as now scheduled, and I would hope to have that contract underway by the end of next week.

Mr. **Bevill.** Does the contract have to be rebid?

General **Bunker.** Sir, the bids have been received and opened for contract award. The low bidder was substantially above the Government estimate. The low bidder's claim in court was that the Government's estimate was defective and too low, based upon the Government's own regulations of how to develop estimates for dredging contracts. The judge determined, in his ruling, that, in fact, the Corps' estimate was too low, and he set a value as to what that estimate should have been. We are taking that decision and proceeding with the judge's ruling on the estimate to award a contract. That's where the $4 million difference comes in. So we, sir, are in the position of being able to award as soon as we go through the preaward formalities with the contractor.

Mr. **Bevill.** Yes.

WILLIAM BACON OLIVER LOCK AND DAM (REPLACEMENT), ALABAMA

I'd like for you to provide the committee with a status on the Oliver Lock and Dam on the Warrior River near Tuscaloosa, Alabama.

General **Bunker.** All right, sir.

Mr. **Bevill.** Is that something you would need to furnish for the record, or do you have that information now?

General **Bunker.** Sir, that project is presently 56 percent complete. As I said in my status report, we started installing the miter gates on that project last month. The lock-in operation is scheduled for December of 1991, and our project completion is scheduled for December of 1992. On that project, through the contractor, Mobile District has evolved a very innovative partnering relationship with the contractor which I think has been extremely successful so far and has allowed for us to continue our mutual support between the contractor and the Government in a way that is hands off for the contractor but is win-win for both sides. That project is proceeding along very, very well for the complexity of the project.

Mr. **Bevill.** Are you on schedule?

General **Bunker.** Yes, sir.

Mr. **Bevill.** You've had some complications on that one. I remember the rockslide you had a couple of years ago.

General **Bunker.** Yes, sir. Bank failure occured in August 1987 causing riprap placed as part of the river diversion contract to slide into the river. That repair work was completed in December 1987.

PORTUGUES AND BUCANA RIVERS, PUERTO RICO

Mr. **Bevill.** What is the status of the dam in Puerto Rico? That's the one I ask about every year, because I saw them working on it about 10 years ago.

General **Bunker.** Sir, the Cerrillos dam's 65 percent complete and is due to be finished in November 1992. We have invited the

Governor out this fall for the topping out ceremony with our contractor, Dillingham, on that project. The dam will reach its top elevation. It also is working in a very professional manner. We were lucky with Hugo. Hugo came across the north edge of the island, and this is on the southern edge. We lost about 13 days of weather time from the storm, but that's all. So we're proceeding very well.

VILLAGE CREEK, JEFFERSON COUNTY, ALABAMA

Mr. **Bevill.** Is the Village Creek, Jefferson County, Alabama project proceeding on schedule?

General **Bunker.** Yes, sir. The real estate procurement at the present time is slightly ahead of schedule, sir.

Mr. **Bevill.** I think we had some real floods there this time.

General **Bunker.** We're not quite back to normal status at the moment, sir.

KISSIMMEE RIVER, FLORIDA

Mr. **Bevill.** Is work proceeding on the Kissimmee River demonstration project?

General **Bunker.** No, sir, work is not proceeding at the moment on the Kissimmee River demonstration project. As you know, there have been a total of $6.3 million appropriated for a demonstration project on Paradise Run, which is a cutoff down close to where the Kissimmee comes into Lake Okeechobee. As of January of this year, sir, the State has withdrawn its support of that project in that location. At the moment, Florida, through its Governor, has endorsed a larger project at a different part of the Kissimmee River, up in Pool C, which will be a filling-in, under the proposal that now exists, of about 35 miles of the lower end of the Kissimmee River cutoff, returning that overall part of the river to the original trace of the meandering river before the cutoff was put in a couple of decades ago. At the present time, the technical analysis associated with the decision to restore that part of the river to its original environmental state, or as much as possible, has not yet been completed. We don't have the detailed proposal. Until we understand what the ramifications of the State's proposal are, particularly on upstream flooding on our authorized project, we're not in a position to fully support the State's proposal. So we are leaning forward and anxiously working with the State in order to support the environmental restoration in that area, but we are not, because of the change from Paradise Run to Pool C, in a position to proceed. The State has requested that the $6.3 million that has presently been appropriated not be used on the Paradise Run demonstration project, but instead be utilized as a part of the Phase I costs of the new project proposed by the State.

Mr. **Bevill.** A bigger project?

General **Bunker.** A bigger project. And, sir, we are working on the viability of the project proposed by the State. I do not know the answer to that question yet.

Mr. **Bevill.** All right.

SOUTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operations and Maintenance, General, FY 1991

2. Flood Control (Cont.)

b. Channel Improvements, Inspections, and Miscellaneous Maintainance

OBLIGATIONS

PROJECT	ACTUAL FY 1989	ESTIMATED FY 1990	ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
MISSISSIPPI				
East Fork, Tombigbee River	66,000	80,000	249,000	Variation in snagging requirements.
Inspection of Completed Works	169,000	136,000	155,000	
TOTAL - Channel Improvements, Inspections, & Miscellaneous Maintenance	5,039,000	5,117,000	5,031,000	
TOTAL - FLOOD CONTROL	9,220,000	10,462,000	10,125,000	

3. Multiple Purpose Power

The program request of $60,350,000 provides for the operation requirements of 13 multiple purpose projects. Requirements include: operation and ordinary maintenance of project facilities; labor, supplies materials, and parts for day-to-day functioning; and periodic maintenance, repairs and replacements. The requested amount also includes application of special recreation use fees for recreation areas.

ALABAMA				
Millers Ferry Lock and Dam - William "Bill" Dannelly Reservoir	3,783,000	2,757,000	4,233,000	Repair powerplant in FY 89 and FY 91.

1986

SOUTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operations and Maintenance, General, FY 1991

3. Multiple Purpose Power (Cont.)

PROJECT	OBLIGATIONS ACTUAL FY 1989	ESTIMATED FY 1990	ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
Robert F. Henry Lock and Dam - R.E. 'Bob' Woodruff Lake	2,222,000	2,435,000	3,352,000	Repair spillway gates in FY 91.
Walter F. George Lock and Dam	7,421,000	6,877,000	5,460,000	Acquire lands for erosion protection in FY 89 and FY 90.
FLORIDA				
Jim Woodruff Lock and Dam	5,730,000	4,470,000	4,169,000	Aquatic plant control in FY 89.
GEORGIA				
Allatoona Lake	4,886,000	4,079,000	4,872,000	Construct O&M compound in FY 89. Increased powerhouse maintenance in FY 91.
Buford Dam - Lake Sidney Lanier	7,439,000	5,763,000	5,707,000	Construct O&M compound in FY 89.
Carters Lake	4,813,000	3,653,000	3,278,000	Repair turbines 3 and 4 in FY 89 and FY 90.
Hartwell Lake	7,653,000	6,946,000	5,422,000	Repair powerplant in FY 89 and FY 90.
J. Strom Thurmond Lake	10,522,000	9,069,000	7,671,000	Repair powerplant in FY 89 and FY 90.

1987

29 JAN 1990

SOUTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operations and Maintenance, General, FY 1991

3. Multiple Purpose Power (Cont.)

	OBLIGATIONS			
PROJECT	ACTUAL FY 1989	ESTIMATED FY 1990	ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
Richard B. Russell Dam and Lake	3,499,000	3,641,000	3,925,000	
Walter F. George L & D (see Alabama)				
West Point Lake	5,660,000	3,967,000	4,908,000	Construct O&M compound in FY 89.
NORTH CAROLINA				
John H. Kerr Dam and Reservoir (see Virginia)				
SOUTH CAROLINA				
Hartwell Lake (see Georgia)				
J. Strom Thurmond Lake (see Georgia)				
Richard B. Russell (see Georgia)				
VIRGINIA				
John H. Kerr Dam and Reservoir	5,178,000	5,450,000	5,691,000	
Philpott Lake	1,724,000	1,437,000	1,662,000	
TOTAL - Multiple Purpose Projects	70,530,000	60,544,000	60,350,000	

29 JAN 1990

SOUTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operations and Maintenance, General, FY 1991

4. Protection of Navigation

PROJECT	OBLIGATIONS ACTUAL FY 1989	 ESTIMATED FY 1990	 ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
The program request of $4,169,000 provides for accomplishing the work essential to the eradication of aquatic plant growth for navigable waters in Florida and project condition surveys for navigation projects for which maintenance is not scheduled in the budget year.				
Removal of Aquatic Growth	2,815,000	2,647,000	3,196,000	Increased aquatic plant control in FY 91.
Project Condition Surveys	332,000	856,000	973,000	Increase in projects surveyed in FY 90 and FY 91.
TOTAL - Protection of Navigation	3,147,000	3,503,000	4,169,000	
GRAND TOTAL - SOUTH ATLANTIC DIVISION	201,626,000	208,100,000	204,213,000	

1989

2 0 JAN 1990

OPERATIONS AND MAINTENANCE

MOBILE HARBOR, ALABAMA

Would you explain the large increase in maintenance dredging requirements for the Mobile Harbor Project in Fiscal Year 1991?

General **Bunker**. It is based on increased quantities of material to be removed, and a change in disposal area location sir. We estimate a year in advance for all of our dredging projects, what the requirements will be at the time of dredging. Depending on weather characteristics, we get more or less material to be dredged. What we have in Mobile Harbor is more material now actually to be removed requiring an increase in the 1991 budget.

Mr. **Bevill**. Do you pay dredging contractors according to the amount they remove?

General **Bunker**. We pay the contractor, sir, according to the amount we contract for, which will be the actual amount that he removes.

Mr. **Bevill**. Okay.

General **Bunker**. We conduct pre contract surveys to bring the plans and specifications up to date, to current actual surveyed conditions, to determine the contract quantities before we can go out with a contract. We conduct after construction surveys to determine the actual amount removed.

Mr. **Bevill**. Where are you putting all the material that you remove?

General **Bunker**. Mostly, that's upland disposal, sir, from the areas that the city has assiduously worked on in the last couple of years, and has finally managed to assemble an acceptable set of dredge disposal areas for us. It has been a long and very difficult process for local government. However, after June 1990, all dredge material from Mobile Harbor will be disposed of in approved Gulf disposal sites in accordance with the Water Resources Development Act of 1986. The increased cost for Gulf disposal accounts for part of increased maintenance requirement in Fiscal Year 1991 for the harbor.

Mr. **Bevill**. It's getting to be one of the biggest problems throughout the country for the Corps, isn't it?

General **Bunker**. Sir, I believe that dredge spoil disposal is the key issue associated with maintenance of harbors and rivers in the future.

Mr. **Bevill**. You have to lean pretty heavily on local governments to resolve that, don't you?

General **Bunker**. I do, sir. It is becoming environmentally less acceptable for ocean disposal. As a result of that, the Corps of Engineers and Secretary Page are putting emphasis on research and development in dredge disposal as part of the CPAR Program that has been developed, with your assistance, over the last couple of years. Sir, we are also relatively successful in a number of areas of utilizing the dredge spoil, as we dispose of it, in what we believe to be viable creation of new wetlands. So I think there is also an opportunity there for us in the future to make better use of our disposal.

Mr. **Bevill**. All right.

BLACK WARRIOR AND TOMBIGBEE RIVERS, ALABAMA

Last year you requested $12.264 million for operation and maintenance of the Black Warrior and Tombigbee Rivers in Alabama. Why are you only requesting $9.292 million in fiscal year 1991?

General **Bunker**. Mostly, sir, because of variations in the dredging requirement. That's a normal fluctuation, sir, due to the differences year to year between the amount of dredge material that needs to be removed, and the amount of money that needs to be put into maintenance of the locks and dams along the waterway. So there's nothing there that is unusual.

Mr. **Bevill**. You believe you will need less?

General **Bunker**. Yes, sir.

Mr. **Bevill**. The Chair recognizes Mr. Myers.

Mr. **Myers**. Mr. Chairman, the district in Georgia that Mr. Thomas has the privilege of representing is in this Division, so at this point I will yield to Mr. Thomas of Georgia.

Mr. **Bevill**. All right.

The Chair recognizes Mr. Thomas. As a matter of fact, I'm going to ask you to take the gavel for a few minutes because I need to return a telephone call. I will be right back.

Mr. **Thomas** Thank you, Mr. Chairman.

I thank my colleague, Mr. Myers.

General, it is good to see you again this morning. I certainly enjoyed visiting with you yesterday on two different occasions. I appreciated your time and your indulgence very much.

I also want to say that I have three very good friends in the audience today that I am very proud to have here. We spent some time with them yesterday. They are Colonel Ralph Locurcio, who is Commander of our Savannah District of the Army Corps of Engineers, and his assistants, Kitty Burns and Marc Reynolds, who are also here with him today. Will you all stand?

[Applause.]

Mr. **Thomas**. Three very good friends and very professional people who I have enjoyed working very much with down in Savannah. Of course, you can imagine with being responsible for all the coast of Georgia and all the things that we have going on there, and the tremendous construction projects underway, how important our Corps District is to us in that area. So I really am very grateful that they are here this morning.

I would like to talk with you about a couple of areas of special interest to me. One is the beach problem in Glynn County that was shown on your slide, and of course, the Satilla River Project which we know a little bit more familiarly as the Umbrella Creek Project. We have talked a good bit about them, and I know the Colonel is up on them too.

I would just like to touch on them briefly with you for the record here this morning.

SATILLA RIVER, UMBRELLA CREEK, GEORGIA

The shoaling problems in Umbrella Creek have been investigated several times during the last few decades by the Corps. While the Corps never indicated that there could be detrimental impacts on other parts of the tidal system if the project was completed, I have had a number of constituents who have expressed considerable concern about this and have contacted me to express their concern on numerous occasions about the possible harm this project would cause to other creeks in the area. So I am interested in knowing when the Corps' environmental assessment and implementation plan will be completed, and if it will include a review of possible navigation and environmental impacts on nearby creeks?

General **Bunker**. Sir, we are presently preparing a project implementation plan. As you know, that was a directed project and it hasn't gone through our normal process. That plan is due to be completed next month. That includes an environmental assessment. The environmental assessment that is associated with that, sir, is one that is more associated with how to accomplish the project as directed than with whether the project is environmentally sound, because under NEPA, basically, that decision would normally have been made at the time that the project was directed. I will work with the District to ensure that the environmental assessment, however, does include the concerns that you are raising at the present time, sir. If in fact we find that there is a significant environmental impact elsewhere within the system, then we would, prior to blindly proceeding with the project, raise that issue back up for consideration.

Mr. **Thomas**. Well, I know we will be careful to do that. I want to assure the people in that area, our constituents and all the people, that we are certainly sensitive to the impact that the project might have in other areas. We all realize that tidal areas work as a system, and sometimes things done in one area have an unpredictable impact in another.

General **Bunker**. I understand, sir.

Mr. **Thomas**. So I want us to be very careful about what we do. I think this is a very important project. But I want us to proceed very carefully, and I know we will.

Are you aware at this time of any objections from the Fish and Wildlife Service or from the Environmental Protection Agency to the proposed project?

General **Bunker**. Nervousness, but no formal rejection, sir.

Mr. **Thomas**. We set aside $500,000 for the project. Do you think you can complete your work with that amount of money $500,000?

General **Bunker**. Sir, that $500,000 is adequate to complete the project implementation plan. That plan will better define the cost of the required work.

Mr. **Thomas**. Okay. Good. General, thank you for those comments on that particular project.

GLYNN COUNTY BEACHES, GEORGIA

I was certainly struck when I saw the picture of those beautiful beaches in Glynn County. Of course, I have all of the Georgia coast in my district, as well as the marsh and estuarine systems. We are very concerned about beaches and beach erosion and, of course, the impact of beach erosion on our harbors in that area, and how that works in conjunction.

But beach erosion is something that I have watched ever since I was a boy and walked on those beaches from the time I was old enough to walk. I swam there. I have seen them change dramatically over the years, and I'm very concerned about the future of our Georgia beaches. We have set aside much of the barrier islands for public access, and the public beaches are under tremendous use and are becoming, of course, more valuable and important to us, to the entire State. They are a part of our heritage of natural resources. They are a real gem, a jewel, to us in our State.

Would you care to give me any comments at this time about how things are progressing? Has your work progressed enough to give me any comments on the Glynn County Beaches renourishment study?

General **Bunker**. Sir, as you know, the reconnaissance study that was funded in Fiscal Year 1990 is underway at the present time and really won't be finished until August of this year. We hope with the funds for 1991 to initiate the feasibility study. At the present time I don't have a feeling of where we are. My expectation is that there is a project there that will allow a partnership between the Federal Government and the local governments and the people with regard to protection of the structures on those islands. I have no reason to believe that that's not true. I might digress and point out that, at least based upon experience in other areas, the beach nourishment projects or beach protection projects from coastal flooding and hurricanes are adequate, in the main, to protect against 5- or 10-year events. They are not adequate to protect against a Hurricane Hugo. So while there is great value, I believe, in the preservation of beach land and the Federal interest in beach nourishment for protection of structures is clearly well placed, from my own personal opinion, I am trying hard these days, after having witnessed Hugo, to ensure that expectations are not raised too high. In fact, had we finished what would probably be the final analysis of a project in coastal Georgia, as we have previously been working and planning at Folly Beach and Myrtle Beach and before Hugo came, basically, Hugo wouldn't have noticed the difference when it came across the beach, because a Hugo gives you a storm surge in the vicinity from, say, Charleston up to the North Carolina border, of 15 to 20 feet along that whole reach, and a 5- to 10-year level of protection is about 9 feet. So while we are providing a level of protection, it does not count against 100-year storms.

Mr. **Thomas**. We are aware of that. That brings something to mind. I wanted to pay a special thank you to you and all of your Corps people in the area and all of your people across the nation who came to help for the excellent job that they did in preparing for Hugo. I happened to get in early before air traffic was stopped on that day. It was one of only two times in the eight years that I've been in the Congress that I left here and missed votes. One was a death in my family, and the other time was when Hugo came in. We got in to Savannah. I had my four-wheel-drive and some rain gear waiting, and went to the Civil Defense headquarters, just across the street from the Army Corps of Engineers headquarters. I was invited to stay in both places. The only reason that I decided to stay in the Civil Defense headquarters was that to the best of my estimation, in eyeballing it, they had a little bit higher elevation over there. And with a Category IV, we were told that the whole area was going to be under water.

But the evacuation went very well. As to the response that has been made in the aftermath of the devastation, I just want to commend you for a very professional job and one well done.

In addition I would like to do one last thing, and then I will yield back my time. I have some questions for the record that were raised by Oglethorpe Power Corporation, and I would simply like to submit these to you to answer for the record.

General **Bunker**. Thank you, sir. I would be delighted.

[The information follows:]

QUESTIONS SUBMITTED BY CONGRESSMAN THOMAS

WATER CONTROL PLANS

Mr. THOMAS. In developing water control plans, does the Corps solicit and incorporate the views of effected Federal, state and local governmental agencies?

General BUNKER. Yes, Sir. The Corps solicits information from and coordinates fully with Federal, state and local government agencies in developing water control plans.

Mr. THOMAS. When the Corps considers making a change in a project's water control plan, does it determine whether the project's authorizing legislation permits such a change?

General BUNKER. Sir, the original authorizing documents and subsequent pertinent legislation generally recognize the need to consider future changes in conditions and allow the operating agency some discretionary authority to make changes. A review is always made of the projects authorizing legislation regarding this aspect.

Mr. THOMAS. When considering a change to project operations, does the Corps consider how the change would affect the benefits produced and/or the payment responsibility upon which the project was authorized?

General BUNKER. Sir, consideration is always given to the affect proposed changes may have on project benefits. Whenever a change in operation may cause a significant change or impact on a project purpose, a post authorization change report has to be submitted to the Congress. That report addresses, among other things, the project economics and the payment responsibilities.

Mr. THOMAS. For the water control plans developed for the Savannah River Basin, and the Apalachicola-Chattahoochee-Flint River System, please describe the process the Corps followed, including (1) economic analyses; (2) environmental consideration; (3) analyses of authority under project authorizations; and (4) impact upon reimbursable project uses.

General BUNKER. Sir, the process followed during the development of the water management plans for the Apalachicola-Chattahoochee-Flint River System and the Savannah River was the same for both plans. Under economic analysis, water users and potential impacts were identified for the uses of hydropower, water supply and recreation. Judgements were made in order to balance impacts among competing project purposes. For environmental consideration, environmental assessments were prepared on each water management plan to supplement Environmental Impact Statements on each individual project. Concerning the authority, an exhaustive search of authorities was made by an interdisciplinary team of water resources planners, designers, operators and legal counsel. Considering the impact upon reimbursable project uses, impacts to hydropower were identified and quantified in cooperation with the Southeastern Power Administration (SEPA). Impacts to purposes such as recreation were identified more subjectively by the resource managers and through public meetings. Impacts to water supply were identified by interaction with state and local agencies. During drought contingency planning, impacts to all project purposes were considered. It was determined that maintaining water supply and water quality were in the highest public interest and outweighed the negative impacts to hydropower and recreation.

Mr. **Thomas**. Thank you, General.

Thank you, Mr. Chairman.

Mr. **Bevill**. Mrs. Smith?

Mrs. **Smith**. Thank you, Mr. Chairman. I have no questions.

Mr. **Bevill**. Mr. Myers?

Mr. **Myers**. Thank you, Mr. Chairman.

TENNESSEE-TOMBIGBEE WATERWAY, ALABAMA AND MISSISSIPPI

General, in your chart for the Tennessee Tombigbee Waterway you noted that for the years that you have operated it there has been a tonnage trend except for the year 1988 when the drought affected the main stream of the Mississippi River.

General **Bunker**. Yes, sir.

Mr. **Myers**. I think this past year, 1989, 5.2 million tons of commerce moved on the waterway. Is that about what you projected?

General **Bunker**. Yes, sir. We've been growing at 12 to 13 percent a year. When you take 1988 out because of the anomaly of the closure of the Mississippi, we are still at a 12 to 13 percent annual increase.

Mr. **Myers**. Is that about what was expected? Are you above or below what the projection was?

General **Bunker**. Slightly below it, but very close, sir.

Mr. **Myers**. Of course, the economy might be affecting it somewhat.

General **Bunker**. Yes, sir.

Mr. **Myers**. We're not burning as much coal as we should, and we're not raising enough grain to export, either.

General **Bunker**. But, sir, I'm comfortable it's earning its keep.

Mr. **Myers**. Of course, a lot of us got a lot of flak both from within Congress and outside when we built the Tenn-Tom. We would do it again, I'm quite sure. I supported it and still do.

HUGO DAMAGE TO THE CAROLINAS

The other question I have is on the storm that hit the Carolinas. What was the amount of damage to the Carolinas? Do we have a dollar figure on that?

General **Bunker**. Sir, the numbers are still being aggregated. The claims are still being turned in to the Federal Emergency Management Agency, and I've still got a number of professional engineers out reviewing them.

The numbers that I get are up in the range of $3 billion to $4 billion for the total damage.

Mr. **Myers**. How many storms in this century have hit the Carolinas?

General **Bunker**. Sir, I will provide that for the record.

[The information follows:]

HURRICANES AFFECTING THE CAROLINAS FROM 1900

Date	Name	Category	General landfall area
July 1901		1	Manteo, NC.
September 1904		1	Charleston, SC.
September 1906		3	Georgetown, SC.

HURRICANES AFFECTING THE CAROLINAS FROM 1900—Continued

Date	Name	Category	General landfall area
August 1911		2	Beaufort, SC.
September 1913		1	Morehead City, NC.
July 1916		1	Bulls Bay, SC.
September 1920		1	Wilmington, NC.
August 1940		2	Beaufort, SC.
August 1944		1	Wilmington, NC.
September 1945		3	Hilton Head, SC.
October 1947		2	Savannah, GA.
August 1952	Abel	1	Beaufort, SC.
October 1954	Hazel	4	SC–NC Stateline.
August 1955	Diane	1	Wilmington, NC
July 1959	Cindy	1	McClellanville, SC.
September 1959	Gracie	3	Edisto Island, SC.
September 1979	David	2	Savannah, GA.
September 1984	Diana	2	Wilmington, NC.
July 1985	Bob	1	Fripp Island, SC.
August 1986	Charlie	1	Southern portion of NC.
September 1989	Hugo	4	Charleston, SC.

Mr. **Myers**. How does Hurricane Hugo rate in severity with the other storms?

General **Bunker**. I have great difficulty in answering that, sir, because everybody likes to believe that the one that hit them was the greatest in one particular way or another. Hugo is, over in the Carolina area, being called the "storm of the century." The combination, surely, of the Virgin Islands and the damage in Puerto Rico and the South Carolina coastline, and the wind damage that took place all the way up into western Virginia, gives us a scope on this storm that is unparalleled. We lost basically the primary electrical system in about half of South Carolina and a good bit of North Carolina in the process.

Mr. **Myers**. Okay. Thank you for the fine work that you are doing.

General **Bunker**. Thank you very much.

Mr. **Bevill**. General, several members of the panel who could not be here today may be submitting questions for you to answer on the record. I have additional questions for you to answer on the record.

[The information follows:]

QUESTIONS SUBMITTED BY CONGRESSMAN BEVILL

GENERAL INVESTIGATIONS

SURVEYS

SAVANNAH HARBOR EXTENSION, GEORGIA

Mr. BEVILL. Why was the start of the Savannah River Extension, Georgia, reconnaissance study delayed from Fiscal Year 1989 to Fiscal Year 1990?

General BUNKER. Sir, initiation of the reconnaissance study was delayed from Fiscal Year 1989 to Fiscal Year 1990 due to a delay in receiving economic data from the local sponsor. The Georgia Port Authority was conducting facility planning and economic data collection and analyses. They requested the study be delayed until that data could be made available.

BROWARD COUNTY, FLORIDA

Mr. BEVILL. What is the status of the Broward County, Florida, feasibility study?

General BUNKER. Sir, the Reconnaissance Report for the Broward County, Florida study was completed in May 1989. The report determined that the construction of flood control measures would be uneconomical at this time. Therefore, the feasibility study will not be undertaken.

COAST OF FLORIDA EROSION AND STORM EFFECTS STUDY, FLORIDA

Mr. BEVILL. Who are the non-Federal cost sharing partners for the Coast of Florida Erosion and Storm Effects, Florida, study?

General BUNKER. Sir, the non-Federal cost sharing partner for this study is the State of Florida, Department of Natural Resources.

ST. PETERSBURG AND VICINITY, FLORIDA

Mr. BEVILL. What is the status of the St. Petersburg and Vicinity, Florida, study?

General BUNKER. Sir, a favorable Reconnaissance Report for St. Petersburg and Vicinity, Florida, was completed in May 1989. A feasible plan for flood protection including raising roads to serve as levees, and floodwalls was identified. There were no other feasible plans identified for the study area. Local residents were opposed to the raising of the road and floodwalls due to visual impacts and would not support the plan. Therefore, the feasibility study will not be undertaken due to a lack of cost sharing sponsor.

METROPOLITAN MACON AREA, GEORGIA

Mr. BEVILL. Why have no funds been requested to continue the Metropolitan Macon Area, Georgia, study?

General BUNKER. Sir, reconnaissance investigations under the General Investigations program revealed that a solution to the flood problem in Macon could be accomplished under the Small Projects Continuing Authorities Program. No other feasible solutions were identified.

SAVANNAH RIVER BASIN, GEORGIA, SOUTH CAROLINA, AND NORTH CAROLINA

Mr. BEVILL. We note that the Savannah River Basin, Georgia, South Carolina, and North Carolina, study has been reoriented to examine reallocation of storage at existing Corps reservoirs. In other instances you have used operation and maintenance funds to study the reallocation of storage at reservoirs. What is your policy regarding the use of operation and maintenance funds to conduct studies?

General BUNKER. Sir, under normal policy and procedures, operation and maintenance funds may be used to make preliminary evaluations to determine whether or not modifications to existing projects should be made. If these evaluations indicate the need for further study, it should be accomplished using General Investigation funds. In the case of the Savannah River Basin Study, preliminary evaluations have revealed the need for further analysis under the General Investigations program.

EASTERN NORTH CAROLINA ABOVE CAPE LOOKOUT, NORTH CAROLINA

Mr. BEVILL. The Fiscal Year 1990 Energy and Water Development Appropriations Act provided an additional $150,000 for the Eastern North Carolina above Cape Lookout, North Carolina, study to be used in support of the Albemarle-Pamlico Estuarine study under the National Estuarine Study Program. Are you proceeding with that work?

General BUNKER. Yes, sir. We have developed a joint scope of work with USGS and US Fish and Wildlife Service to model flows and circulation patterns in Albemarle Sound. The Wilmington District will establish and monitor tide, wind and current gages during the remainder of the Fiscal Year.

Mr. BEVILL. Why has the completion date for the study slipped from September 1990 to September 1991?

General BUNKER. Sir, the completion date slipped due to substantial changes in the design of flood reduction plans including geotechnical and hydraulic investigations at Elizabeth City, Belhaven, Washington and Lowland which delayed initiation of studies at other communities.

GUAYANILLA RIVER, PUERTO RICO

Mr. BEVILL. Why have no funds been requested to continue the Guayanilla River, Puerto Rico, study?

General BUNKER. Sir, the reconnaissance report was completed in May 1989. The local sponsor, the Puerto Rico Department of Natural Resources, has indicated that they prefer to build the project themselves. Therefore, the feasibility study will not be undertaken.

RIO NIGUA AT SALINAS, PUERTO RICO

Mr. BEVILL. Why has the completion date for the Rio Nigua at Salinas, Puerto Rico, study slipped one year?

General BUNKER. Sir, the original schedule called for completion of the feasibility phase in two years. Reconnaissance investigations to date reveal that three years will be required to evaluate and develop a plan to the level of detail necessary for a reliable baseline project cost estimate.

ROANOKE RIVER UPPER BASIN, VIRGINIA

Mr. BEVILL. What is the status of the Roanoke River Upper Basin, Virginia, feasibility study which was scheduled to begin in Fiscal Year 1990 pending agreement on local cost sharing?

General BUNKER. Sir, the reconnaissance study was completed in February 1990. The report is unfavorable for Federal participation in water resources development in the study area. No further Federal studies are recommended at this time.

GLYNN COUNTY BEACHES, GEORGIA

Mr. BEVILL. The Glynn County Beaches, Georgia, reconnaissance phase is scheduled to be completed in August of this year. Why can't the feasibility study begin immediately thereafter?

General BUNKER. Sir, the feasibility study can be initiated only after reconnaissance report approval and the execution of a feasibility cost sharing agreement with the local sponsor.

SOUTH CENTRAL FLORIDA SIMULATION MODEL, FLORIDA

Mr. BEVILL. What is the status of your work on the South Central Florida Simulation Model, Florida?

General BUNKER. Sir, a Plan of Study was initiated and completed in Fiscal Year 1990. No further studies are scheduled at this time since the potential outputs of such a study are not in accord with current Administration priorities.

PRECONSTRUCTION ENGINEERING AND DESIGN

RICHARD B. RUSSELL DAM AND LAKE, FISH AND WILDLIFE MITIGATION, GEORGIA AND SOUTH CAROLINA

Mr. BEVILL. How will the Richard B. Russell Dam and Lake, Fish and Wildlife Mitigation, Georgia and South Carolina, project be cost shared?

General BUNKER. Sir, the mitigation work will be cost shared at the same percentage as project construction. The estimated mitigation cost is $20,200,000 Federal and $50,000 non-Federal.

CANAVERAL HARBOR, FLORIDA

Mr. BEVILL. What caused the delay in completion of the feasibility study for the Canaveral Harbor, Florida, project?

General BUNKER. Sir, the seven month delay is due to incorporation of planning and design for cost shared recreation development at the request of the local sponsor, and awaiting data from the harbor pilots concerning widening of the channel. The feasibility report is scheduled for completion in July 1990.

BRUNSWICK HARBOR, GEORGIA

Mr. BEVILL. Why has the completion date for preconstruction engineering and design for the Brunswick Harbor, Georgia project slipped from September 1991 to September 1992?

General BUNKER. Sir, the date has slipped as a result of a delay in completing the feasibility report. The feasibility report was delayed at the request of the local sponsor to allow sufficient time for marketing efforts to secure additional bulk shipments through the port.

MIAMI HARBOR CHANNEL, FLORIDA

Mr. BEVILL. We note that the recommended plan for the Miami Harbor, Florida, project provides for deeper channels than the plan presented last year. What factors resulted in that change?

General BUNKER. Sir, during the project review process, concerns were expressed involving the size of design vessel being used. Further analysis showed that a larger design vessel resulted in a more economical project. Vessel size and required under keel clearances were the major factors involved in the need for deeper channels.

Mr. BEVILL. Why has the estimated cost of preconstruction engineering and design doubled since last year?

General BUNKER. Sir, the preconstruction engineering and design cost increase reflects the need for additional geotechnical investigations due to the presence of rock associated with the increased channel depth, and the addition of a ship simulator study.

WILMINGTON HARBOR - NORTHEAST CAPE FEAR RIVER, NORTH CAROLINA

Mr. BEVILL. The estimated construction cost presented this year for the Wilmington Harbor-Northeast Cape Fear River, North Carolina, project is about 50 percent greater than the cost presented last year. Please explain.

General BUNKER. Sir, the project cost estimate increased due to price escalation on construction features, design changes involving utility relocations, and post contract award and other estimating adjustments involving more detailed surveys.

Mr. BEVILL. Does the increased cost affect the project authorization?

General BUNKER. Yes, Sir. The Water Resources Development Act of 1986 requires any project that experiences cost growth greater than 20 percent, excluding inflation and changes due to new laws, be reauthorized before construction. A post authorization change report to request reauthorization is scheduled to be submitted in March 1990.

SUGAR CREEK BASIN, NORTH CAROLINA AND SOUTH CAROLINA

Mr. BEVILL. Why is it necessary to prepare a supplemental report for the Sugar Creek Basin, North Carolina and South Carolina, project?

General BUNKER. Sir, during review of the final feasibility report in Fiscal Year 1985, the Assistant Secretary of the Army for Civil Works determined that further studies and documentation were needed to show that the recommended plan is the NED plan. The supplemental report is being prepared to solidify the NED plan and is scheduled for completion in Fiscal Year 1991.

Mr. BEVILL. Is this report the reason that the cost of preconstruction engineering and design has increased $1 million?

General BUNKER. No, Sir. The original preconstruction engineering and design cost estimate was based on a percent of the construction cost. We have conducted a more detailed network analysis of design requirements. Our revised estimate is based on these requirements.

GILLS CREEK, SOUTH CAROLINA

Mr. BEVILL. Why have no funds been requested to continue the Gills Creek, South Carolina, preconstruction engineering and design effort?

General BUNKER. Sir, the South Carolina State Highway Department is currently designing and plans to construct an embankment for a highway across Gills Creek which will act as a dam, and provide protection from floods in excess of the 100 year event. This embankment would be just downstream from the location selected by the Corps for a dry dam. If this solution is implemented, the major flooding problem in the basin would be solved. The remaining flooding problems can be addressed under the Continuing Authorities program. Thus, no preconstruction engineering and design funds will be needed.

MYRTLE BEACH, SOUTH CAROLINA

Mr. BEVILL. Last year you reported a construction cost for the Myrtle Beach, South Carolina, project of $45,200,000. This year, you show a cost of $92,510,000. Why has the cost risen so dramatically?

General BUNKER. Sir, the previous estimate of $45,248,000 was based on October 1987 price levels and only reflected the uninflated first cost of the project. Our current estimate of $92,510,000 consists of the first cost of extending the life of the project to 50 years in accordance with the Water Resources Development Act of 1986, the present valve of all future nourishments, and the estimated inflation through the construction period including all future nourishments.

CONSTRUCTION

CANAVERAL HARBOR, FLORIDA

Mr. BEVILL. Please describe the mitigation measures that will be undertaken on the Canaveral Harbor, Florida, project.

General BUNKER. Sir, the mitigation measures include degrading three disposal areas and installing 36 culverts. This mitigates for hard bottom, shallow water habitat lost during construction and reconnects an existing marsh with the surrounding estaurine system.

TAMPA HARBOR, BRANCH CHANNELS, FLORIDA

Mr. BEVILL. Why have no funds been requested to continue the Tampa Harbor, Branch Channels, Florida, project?

General BUNKER. Sir, the funds now available to the project are sufficient to complete the Hillsborough Bay, Cut D, contract in October 1990. Hillsborough Bay, Cut D, is one of the Branch Channels in Tampa Harbor. In coordination with the local sponsor, no further work is now scheduled pending a determination of need and local interests funding capabilities.

INDIAN RIVER COUNTY, FLORIDA

Mr. BEVILL. What is the status of the Indian River County, Florida, beach nourishment project?

General BUNKER. Sir, the General Design Memorandum for beach erosion control improvements for the Vero Beach and Sebastian Inlet State Park portions of Indian River County was approved in January 1988. Due to concerns expressed by local interests of possible damage to offshore rock formations, a Supplemental General Design Memorandum was initiated in April 1989 for the Vero Beach portion to determine what project modifications would be required to avoid damage to the offshore rock formations. The Supplemental General Design Memorandum is scheduled to be completed in March 1990.

PINELLAS COUNTY, FLORIDA

Mr. BEVILL. Please explain the cost increase for the Pinellas County, Florida, project.

General BUNKER. Sir, the project cost estimate increased $83,338,000 to extend the project life to 50 years in accordance with the Water Resources Development Act of 1986. The extended life of the project increases the number of nourishments required to maintain the authorized project configuration. The increased cost includes estimated inflation through the construction period for the nourishments.

Mr. BEVILL. What is the unscheduled work for the project?

General BUNKER. Sir, the unscheduled work is the construction of three breakwaters; one at Indian Shores and two at Indian Rocks Beach. The purpose of the breakwaters is to reduce wave energy at the shoreline, resulting in reduced erosion and storm damage. The initial project fill will be monitored to observe project effectiveness. The results of this monitoring will be used to determine the need for the breakwaters and assist in determining the appropriate locations.

CENTRAL AND SOUTHERN FLORIDA, FLORIDA

Mr. BEVILL. What is the status of the South Dade County feature of the Central and Southern Florida, Florida, project?

General BUNKER. Sir, the General Design Memorandum addressing agricultural flood damage reduction was nearly complete in 1988. During the review process, the National park Service requested consideration of restoring sheet flow to the lower Everglades National Park. The General Design Memorandum is being expanded to include the capability of diverting flows through Taylor Slough to the Everglades National Park. The General Design Memorandum is currently scheduled to be completed in December 1990.

EVERGLADES NATIONAL PARK PROTECTION AND EXTENSION ACT

Mr. BEVILL. Please provide the Committee with a description of the work authorized in the Everglades National Park Protection and Extension Act.

General BUNKER. Sir, in addition to the expansion of the Everglades National Park to include approximately 107,600 acres, the Act authorizes, upon completion of a Chief of Engineers final report, the Corps to construct modifications to the Central and Southern Florida project that will enable improved water deliveries to the project and will mitigate flooding to adjacent developed areas caused by the modified water releases. Construction would consist of eight water control structures to redistribute water flows through the lower portion of Water Conservation Area No. 3 into the Park. A flood mitigation system would also be constructed to prevent adverse impacts to a residential area in the East Everglades.

Mr. BEVILL. How would that work be funded?

General BUNKER. Sir, funds for this work in addition to land acquisition are budgeted for the Department of the Interior and will be transferred to the Corps for design and construction as needed.

ROANOKE RIVER UPPER BASIN, VIRGINIA, HEADWATERS AREA

Mr. BEVILL. The justification material states that the Local Cooperation Agreement for the Roanoke River Upper Basin, Virginia, Headwaters Area, project is scheduled to be executed this month. What is the status of the LCA?

General BUNKER. Sir, the Local Cooperation Agreement is being revised to reflect changes based on a January 1990 meeting with the City of Roanoke. If the revised agreement is acceptable to the City, we expect the LCA to be executed in March 1990.

TENNESSEE-TOMBIGBEE WATERWAY WILDLIFE MITIGATION ALABAMA AND MISSISSIPPI

Mr. BEVILL. You proposed to acquire 47,000 acres of land in Fiscal Year 1991. Where will those lands be located?

General BUNKER. Sir, priority will be given to acquiring at least 20,000 acres in the Mobile-Tensaw Delta, followed by acquiring at least 25,000 acres in the Pascagoula River, Pearl River, and Mississippi River Delta. The remainder will be acquired primarily along the Tennessee-Tombigbee Waterway.

CONCEPTUAL PLAN

Mr. **Bevill.** I want to thank you for the fine briefing you gave yesterday on the plan of study for a comprehensive analysis of water resources problems in the Coosa River and the Chattahoochee River Basins.

For your information, Mr. Myers, the General briefed us on the general outline on the plan. The final plan will be provided by General Kelly. Monday is when General Kelly, the Director of Civil Works, will present it.

So we will be looking forward to hearing from him about the Corps' recommendations on the plan for a study, which I understand is going to take about four years.

General **Bunker.** Yes, sir.

Mr. **Bevill.** We appreciate the information that you gave us.

So thank you very much for your help.

General **Bunker.** Thank you, Mr. Chairman.

Mr. **Bevill.** The Chair recognizes Mr. Fazio.

Mr. **Fazio.** I have just come down to say hello to a few friends. I have no questions at this time.

Mr. **Bevill.** Thank you, Mr. Fazio.

All right. Thank you very much, General. This panel will stand adjourned until Monday at 10:00 o'clock.

MONDAY, FEBRUARY 26, 1990.

NORTH CENTRAL DIVISION

WITNESSES

BRIGADIER GENERAL JUDE W. P. PATIN, DIVISION COMMANDER

BING C. CHIN, ACTING DIRECTOR, PROGRAMS AND PROJECT MANAGEMENT DIRECTORATE

RALPH P. MECKEL, ASSISTANT CHIEF, PROGRAMS MANAGEMENT DIVISION

Mr. BEVILL. The committee will come to order. First today, we have the North Central Division.

General Patin, we are pleased to have you and your staff with us here today. This being your first appearance, we will put your biographical sketch, which is very impressive, in the record. You may proceed as you wish.

General PATIN. Thank you, Mr. Chairman.

Mr. Chairman and members of the committee, my name is Brigadier General Jude Patin. I assumed command of the North Central Division on 17 October 1989. It is my pleasure today to make this first appearance before your committee. With me from the Division are Bing Chin, Acting Chief of Programs and Project Management; and Ralph Meckel, his Assistant. Also with me and not seated at the table are Don Leonard and Larry Hiipakka from my Engineering Division, Al Behm from the Planning Division, and Lee Hoglind, my Chief of Project Management.

INTRODUCTION

This morning, our status report will present the Division's region of responsibility, our 1991 budget request, and the current status of our major studies and projects.

REGION OF RESPONSIBILITY

Our region of responsibility comprises the North Central United States. We have all or parts of 12 States, and 95 Congressional Districts; and, in addition, 1,900 miles of International border.

The region also includes 95 percent of the Nation's fresh surface water, 22 percent of the Nation's income, 21 percent of its manufacturing production, and about 20 percent of the U.S. population.

About 290 million tons of cargo are shipped annually using the Illinois, Mississippi and the Great Lakes-St. Lawrence Seaway navigation systems within our region. Seventy-five percent of the Nation's iron ore for steel production transits the Great Lakes.

This slide shows the boundaries of our five engineer districts, totaling almost 3,000 employees and located in Buffalo, Detroit, Chicago, Rock Island and St. Paul.

BUDGET REQUEST

This slide is a graphic of our 1991 budget request by category in comparison to that of the overall budget of the Corps of Engineers. As you can see, 61 percent of the Division's annual budget is in the O&M category. That 61 percent deals with operating, maintaining and rehabilitating our 72 commercial channels and harbors, 42 commercial locks, 16 flood control reservoirs and approximately 900 miles of navigable waterways.

This slide shows a numerical comparison of last year's allocation and this year's budget in the three appropriation categories. The $281 million requested for 1991 is about $24 million less than the 1990 allocation. You will also note that this $281 million reflects an increase in General Investigations and decreases in Construction and Operations and Maintenance.

I would now like to give you a more detailed review of these appropriation categories.

GENERAL INVESTIGATION

Our 1991 General Investigations request is about $6.9 million, including approximately $3.4 million for surveys and $3.5 million for Preconstruction, Engineering and Design.

This $6.9 million provides for 24 projects, 12 Surveys and 12 Preconstruction Engineering and Design. There are no new starts. We will complete five of the 24 projects in the budget year.

I will now highlight a few of these continuing GI studies.

ST. JOSEPH HARBOR, MICHIGAN

At St. Joseph Harbor, Michigan, we will investigate deepening and extending the existing channel dimensions for more efficient commercial navigation. 1991 funds will initiate the feasibility phase of this study.

ILLINOIS AND UPPER MISSISSIPPI RIVER NAVIGATIONAL STUDIES

The Illinois and Upper Mississippi Waterways Navigation Studies will endeavor to achieve a comprehensive analysis of future requirements of the waterway system.

Both waterway systems totaling 37 locks and dams are shown here. 1991 funds will be used to complete the reconnaissance phase for the Upper Mississippi River study and to initiate the feasibility phase for the Illinois Waterway study.

DES PLAINES RIVER, ILLINOIS

In the Des Plaines River Basin, Illinois, the September 1986 flood of record caused $35 million in damages to 10,000 dwellings and over 260 commercial structures. In 1991, we will be continuing the feasibility study toward a completion in September 1993.

WEST DES MOINES, IOWA

West Des Moines, Iowa, is damaged by periodic flooding of streams tributary to the Des Moines River. The authorized project to provide protection has an estimated cost of $18.7 million. The

General Design Memorandum will be completed in 1990 and the Plans and Specifications in September 1991.

FORT WAYNE, INDIANA

Preconstruction Engineering and Design on the Fort Wayne, Indiana, project is continuing. The February 1982 flood, which ranks second to the record flood of 1913, caused over $50 million in damages. 1991 funds will be used to complete the General Design Memorandum.

CONSTRUCTION GENERAL

I would now like to discuss our 1991 Construction General program of approximately $92 million. This request will support 12 projects, including one completion. There are no new starts.

NORTH BRANCH CHICAGO RIVER, ILLINOIS

Let us now review some of our major continuing construction projects, as well as the completion. We will finish the North Branch Chicago River Project to include construction of the three excavated flood water storage reservoirs, as well as reimburse the local sponsor for previous construction of the four Techny and Mid-Fork reservoirs.

PRESQUE ISLE, ERIE, PENNSYLVANIA

At Presque Isle, near Erie, Pennsylvania, we are placing beach nourishment and constructing a system of 58 offshore breakwaters to control erosion at the peninsula. Construction started last October, and the 1991 budget request will further completion to 51 percent.

ROCHESTER, MINNESOTA

Much of Rochester, Minnesota, lies within the flood plain of three streams in the area. Construction to prevent flooding such as this 1978 event is progressing. The overall project is 16 percent complete. The 1991 budget request will result in 43 percent completion.

SOURIS RIVER, NORTH DAKOTA

An International Agreement for the construction of two Canadian reservoirs, to provide storage against flooding downstream on the Souris River in North Dakota, has been signed. The local cooperation agreement has also been executed.

One of two Canadian reservoirs, Rafferty Dam, is well underway. The other, Alameda Dam, is scheduled for initiation of construction this year. Environmental issues have temporarily halted construction in Saskatchewan.

In anticipation of a resumption in their construction, our 1991 budget request will further overall completion to 81 percent. This will include construction of levee improvements and alteration of wildlife refuge structures in North Dakota as well as further reimbursement to the Canadians for flood storage capacity.

BASSETT CREEK, MINNESOTA

We are making good progress on the Bassett Creek, Minnesota flood control project, which is 34 percent complete. Funds requested in 1991 will continue tunnel and channel construction to 93 percent completion.

SHEYENNE RIVER, NORTH DAKOTA

We are initiating construction on the Sheyenne River, North Dakota project this fiscal year. Upon completion, it will prevent damages caused by events such as the 1978 flood. 1991 funds will be used to further the project to 42 percent completion.

UPPER MISSISSIPPI RIVER SYSTEM ENVIRONMENTAL MANAGEMENT PROGRAM

One of our high-priority efforts is the unique Upper Mississippi River System Environmental Management Program, EMP, which is rehabilitating and enhancing important fish and wildlife habitat, and implementing long-term resource monitoring in the five States bordering the Upper Mississippi River.

Four habitat projects have been completed. Four are under construction. Five have been approved for construction and 27 are in various stages of design.

Mr. Chairman, I am also pleased to add that our Mississippi River Weaver Bottoms Environmental Project was recently awarded the Chief of Engineers 1990 Award of Excellence. This project was the prototypical forerunner of the EMP. Since the 1930s, the area has suffered from a continuing loss of aquatic vegetation and fish and wildlife habitat.

The project used previously dredged material to close side channels and build habitat islands. This will reduce future maintenance costs due to less sedimentation in the navigation channel and increase capacity at the site for economical future disposal of dredged material.

OPERATIONS AND MAINTENANCE

Let's now focus our attention on the Division's request for Operations and Maintenance funds. Our 1991 budget request of $183 million includes about $173 million for project operations and maintenance and $9.5 million for major rehabilitation efforts.

Another way of looking at those two categories is by viewing each type of project that they contain. This chart illustrates those major types of projects: navigation, flood control, multi-purpose and navigation protection. The largest project type, which is navigation at $155.8 million, includes $57.8 million for channels and harbors. This $57.8 million will provide $26.3 million for dredging and $19.5 million for structural repairs.

Next is diked disposal. On the Great Lakes, we must confine polluted dredged material. The budget request includes $800,000 for a second diked disposal project at Green Bay, Wisconsin, similar to this existing structure.

Under this diked disposal program, 27 disposal sites have been completed, one is underway and one remains unstarted. Other disposal sites are now being designed and will be constructed under original project authorities rather than this special diked disposal program.

The next category is locks, dams and canals. We are requesting $87.7 million for operations and maintenance of our locks and dams, $67.3 million for the Upper Mississippi River, and $14.4 million for the Illinois River.

MAJOR REHABILITATION

The next category is major rehabilitation. Our 1991 request is for $9.5 million.

This slide shows the status of our current rehabilitation program. With 1991 funds, we will have completed 21 of our 22 ongoing major rehab projects. We are continuing similar work at the remaining locks and dams under our regular O&M program.

CONCLUSION

Mr. Chairman and members of the committee, this concludes our status report. The North Central Division has a dynamic region of responsibility. We are looking forward to the challenges of the future and the continuation of our focus for safe mission execution and customer satisfaction. I am ready to answer any questions you may have.

[The biographical sketch and prepared statement of General Patin follow:]

US Army Corps
of Engineers
North Central Division

BG Jude W. P. Patin

Commander
North Central Division

Brigadier General Jude W. P. Patin assumed command of the North Central Division, U.S. Army Corps of Engineers, on October 17, 1989.

As Commander of the North Central Division, General Patin directs civil works activities in a 428,000 square-mile area that includes the Great Lakes and the Upper Mississippi River basins. The Division encompasses all or parts of 12 states and has district offices in Buffalo, New York; Detroit, Michigan; St. Paul, Minnesota; and Chicago and Rock Island, Illinois.

Patin also supervises Corps activities related to agreements between the United States and Canada on the regulation of boundary waters, by serving on three advisory boards to the International Joint Commission.

Patin was born in Baton Rouge, Louisiana on 25 January 1940. Upon graduation from Southern University of Louisiana in 1962, he was commissioned a second lieutenant in the Field Artillery and awarded a Bachelor of Science degree in Architectural Engineering. He also holds a Master of Science degree in Industrial Engineering from Arizona State University. His military education includes completion of the Engineer Officer Advanced Course, The United States Army Command and General Staff College, and the United States Army War College. In 1964, he was integrated into the regular Army as an officer in the Corps of Engineers.

He has held a wide variety of important command and staff positions culminating in his current assignment as Assistant Chief of Staff, Engineering & Housing, 21st Theater Army Area Command, Kaiserslautern, Germany. Other key assignments include duty as Commander, 136th Engineer Brigade, Ft. Leonard Wood, Missouri; Instructor, U. S. Army War College, Carlisle Barracks, Pennsylvania; and Commander, 293d Engineer Battalion, Baumholder, Germany.

General Patin's service in other key assignments included a tour of duty in Thailand, part of which he served in Vietnam. During this tour he consecutively commanded the 697th and 561st Engineer Companies. At Fort Belvoir, Virginia, he served as an Instructor, U.S. Army Engineer Center. He returned to Vietnam and served in the 65th Engineer Battalion as the Assistant Division Engineer, 25th Infantry Division, and later as the Operations Officer, U. S. Army Construction Agency-Vietnam. His next assignment was as Chief, Plans & Program Branch, U. S. Army Logistics Evaluation Agency, Office of the Deputy Chief of Staff for Logistics, Department of the Army. Returning to the 25th Infantry Division in Hawaii, General Patin served with the 84th Engineer Battalion consecutively as Battalion Operations Officer and Battalion Executive Officer. Following this assignment he became the Advisor to the 1138th Engineer Battalion, Missouri National Guard.

General Patin is a registered professional engineer in the State of Wisconsin. His awards and decorations include the Legion of Merit, the Bronze Star Medal, the Meritorious Service Medal (with second Oak Leaf Cluster), Air Medal, and the Army Commendation Medal (with second Oak Leaf Cluster). He also wears the Republic of Vietnam Cross of Gallantry, the Republic of Vietnam Civil Actions Medal, and the Parachutist Badge.

He is married to the former Rose Marie Darensbourg. They have two children, Michelle, a Second Lieutenant in the U. S. Army Corps of Engineers, and Steven, a Cadet at the United States Military Academy, West Point, New York.

STATUS REPORT ON CIVIL WORKS ACTIVITIES IN THE NORTH CENTRAL DIVISION U.S. ARMY CORPS OF ENGINEERS BEFORE THE SUB-COMMITTEE ON ENERGY AND WATER DEVELOPMENT, COMMITTEE ON APPROPRIATIONS FOR THE FY 1991 BUDGET

REMARKS BY:	HOUSE: 26 FEBRUARY 1990
BRIGADIER GENERAL JUDE W. P. PATIN	SENATE:
DIVISION ENGINEER	
NORTH CENTRAL DIVISION	

MR. CHAIRMAN, AND MEMBERS OF THE COMMITTEE, MY NAME IS BRIGADIER GENERAL JUDE PATIN. I ASSUMED COMMAND OF THE NORTH CENTRAL DIVISION ON 17 OCTOBER 1989. IT IS MY PLEASURE TODAY TO MAKE MY FIRST APPEARANCE BEFORE YOUR COMMITTEE. WITH ME IS BING CHIN, MY ACTING DIRECTOR OF PROGRAMS AND PROJECT MANAGEMENT; RALPH MECKEL, HIS ASSISTANT; AL BEHM AND DON LEONARD, MY ACTING CHIEFS OF PLANNING AND ENGINEERING DIVISIONS, RESPECTIVELY. ALSO IN THE AUDIENCE IS LARRY HIIPAKKA, CHIEF OF TECHNICAL AND COST ENGINEERING BRANCH AND LEE HOGLIND, MY CHIEF OF PROJECT MANAGEMENT.

INTRODUCTION

THIS MORNING MY STATUS REPORT WILL SUMMARIZE SOME SIGNIFICANT ACTIVITIES OF THE DIVISION, HIGHLIGHT OUR REGION OF RESPONSIBILITY, REVIEW OUR BUDGET REQUEST, AND SHOW YOU THE CURRENT STATUS OF MAJOR STUDIES AND PROJECTS. MR. CHAIRMAN, DETAILED JUSTIFICATIONS SUPPORTING OUR FY 91 BUDGET REQUEST HAVE BEEN SUBMITTED FOR THE RECORD. I'LL BEGIN WITH A LOOK AT OUR SIGNIFICANT ACTIVITIES SINCE LAST TESTIMONY WHICH HAVE LEAD TO CUSTOMER SATISFACTION THROUGH SAFE MISSION EXECUTION IN THESE FOUR DIFFERENT ARENAS SHOWN ON THE SLIDE. UNDER PROJECT PERFORMANCE, WE HAVE FULLY EMBRACED THE SPIRIT AND INTENT OF CONGRESSIONAL COST SHARING PROVISIONS. IN FY 89 WE

EXECUTED LOCAL COOPERATION AGREEMENTS FOR 8 SPECIFICALLY AUTHORIZED PROJECTS, WHICH REPRESENTED ONE-THIRD OF THE CORPS OF ENGINEERS' TOTAL. WE CONTINUE TO IMPROVE UPON OUR PROJECT MANAGEMENT SYSTEM EMPHASIZING PRODUCTION OF A QUALITY PRODUCT, WITHIN BUDGET, AND ON SCHEDULE. WE AWARDED $38 MILLION IN NEW CONSTRUCTION PROJECTS AND COMPLETED FIVE PROJECTS IN THE CONSTRUCTION GENERAL CATEGORY OVER ONE MILLION DOLLARS EACH. IN OUR SMALL PROJECTS CONTINUING AUTHORITIES PROGRAM WE HAVE 40 PROJECTS UNDER CONSTRUCTION AND 140 IN VARIOUS STAGES OF PLANNING OR DESIGN.

OUR ENVIRONMENTAL MANAGEMENT PROGRAM FOR THE UPPER MISSISSIPPI RIVER HAS APPROXIMATELY 36 HABITAT PROJECTS IN VARIOUS STAGES OF DEVELOPMENT. FOUR PROJECTS ARE NOW COMPLETED.

INTERNATIONALLY, PHASE I OF THE GREAT LAKES REFERENCE STUDY, FOCUSING ON LAKE LEVELS, WAS COMPLETED. AN INTERNATIONAL AGREEMENT WITH CANADA WAS FINALIZED FOR CONSTRUCTION OF TWO DAMS ON THE SOURIS RIVER IN SASKATCHEWAN TO PROVIDE FLOOD CONTROL IN NORTH DAKOTA.

THE NORTH CENTRAL DIVISION HAS BEEN ACTIVELY INVOLVED IN EMERGENCY ACTIVITIES. ONE-HUNDRED AND SIXTY SIX EMPLOYEES ASSISTED IN FLOOD FIGHTING AND RECOVERY OPERATIONS. THE CONTINUING DROUGHT IN THE MIDWEST HAS RESULTED IN TWO MORE DROUGHT ASSISTANCE PROJECTS WITHIN THE DIVISION, FOR A TOTAL OF SIX.

REGION OF RESPONSIBILITY

BEFORE I DISCUSS OUR FY 91 BUDGET REQUEST, I WOULD LIKE TO BRIEFLY

UPDATE YOU ON OUR REGION OF RESPONSIBILITY. OUR REGION COMPRISES THE NORTH CENTRAL UNITED STATES, FROM NORTH DAKOTA TO THE ST. LAWRENCE RIVER, AND FROM CANADA SOUTH TO WITHIN 50 MILES OF ST. LOUIS. IT HAS ALL OR PARTS OF 12 STATES, AND 95 CONGRESSIONAL DISTRICTS; AND, IN ADDITION, IT HAS 1,900 MILES OF INTERNATIONAL BORDER. IT ALSO INCLUDES 95 PERCENT OF THE NATION'S FRESH SURFACE WATER, 22 PERCENT OF NATION'S INCOME, 21 PERCENT OF ITS MANUFACTURING PRODUCTION AND ABOUT 20 PERCENT OF THE U.S. POPULATION. ABOUT 290 MILLION TONS OF CARGO ARE SHIPPED USING THE ILLINOIS, MISSISSIPPI AND THE GREAT LAKES-ST. LAWRENCE SEAWAY NAVIGATION SYSTEMS WITHIN OUR REGION. SEVENTY-FIVE PERCENT OF THE NATION'S IRON ORE FOR STEEL PRODUCTION TRANSIT THE GREAT LAKES. OUR FIVE ENGINEER DISTRICTS, TOTALING ALMOST 3,000 EMPLOYEES, ARE LOCATED IN BUFFALO, DETROIT, CHICAGO, ROCK ISLAND AND ST. PAUL.

BUDGET REQUEST

LETS NOW REVIEW OUR BUDGET REQUEST. A GRAPHIC REPRESENTATION OF OUR FUNDING BY CATEGORY PROVIDES A PERSPECTIVE OF THE NORTH CENTRAL DIVISION BUDGET IN COMPARISON TO THAT OF THE OVERALL CORPS. AS YOU CAN SEE 61% OF THE DIVISION'S ANNUAL BUDGET IS IN THE O&M GENERAL CATEGORY. THAT 61% DEALS WITH OPERATING, MAINTAINING, AND REHABILITATING 72 COMMERCIAL SHIPPING CHANNELS AND HARBORS, 42 COMMERCIAL LOCKS, AND APPROXIMATELY 900 MILES OF NAVIGABLE WATERWAYS ON THE MISSISSIPPI AND ILLINOIS RIVERS. IN ADDITION, WE OPERATE 16 RESERVOIRS, PRIMARILY FOR FLOOD CONTROL.

A COMPARISON OF LAST YEAR'S ALLOCATION AND THIS YEAR'S BUDGET IS

SHOWN ON THIS SLIDE. THE $281 MILLION REQUESTED FOR FY 90 IS ABOUT $24 MILLION LESS THAN THE FY 90 ALLOCATION. THIS $281 MILLION REFLECTS INCREASES IN GENERAL INVESTIGATIONS AND DECREASES IN CONSTRUCTION AND OPERATIONS AND MAINTENANCE.

I WOULD NOW LIKE TO SUMMARIZE EACH OF THE MAJOR APPROPRIATION REQUESTS.

BUDGET SUMMARY
NORTH CENTRAL DIVISION
($000)

	FY 1990 ALLOCATION	FY 1991 REQUEST	INCREASE OR DECREASE
GENERAL INVESTIGATIONS			
SURVEYS	$ 2,621.0	$ 3,375.0	$+ 754.0
PRECONSTRUCTION ENGINEERING AND DESIGN	3,950.0	3,493.0	- 457.0
CONSTRUCTION, GENERAL			
CONSTRUCTION	114,992.0	91,858.0	- 23,134.0
DAM SAFETY ASSURANCE	1,200.0	0	- 1,200.0
OPERATION AND MAINTENANCE, GENERAL			
PROJECT OPERATION AND MAINTENANCE	163,362.0	173,670.0	+10,308.0
MAJOR REHABILITATION	19,838.0	9,475.0	-10,363.0
TOTAL	$305,963.0	$281,871.0	$- 24,092.0

GENERAL INVESTIGATIONS

IN OUR GENERAL INVESTIGATIONS PROGRAM, OUR FY 91 REQUEST IS $6.9 MILLION, INCLUDING APPROXIMATELY $3.4 MILLION FOR SURVEYS AND $3.5

MILLION FOR PRECONSTRUCTION, ENGINEERING AND DESIGN. THIS $6.9 MILLION PROGRAM PROVIDES FOR 24 PROJECTS CONSISTING OF 12 SURVEYS 12 PRECONSTRUCTION ENGINEERING AND DESIGN. THERE ARE NO NEW STARTS IN THIS BUDGET REQUEST. I WOULD LIKE TO HIGHLIGHT A FEW OF OUR MAJOR CONTINUING GI STUDIES:

ST. JOSEPH HARBOR, MI

AT ST. JOSEPH HARBOR, MICHIGAN, WE WILL INVESTIGATE DEEPENING AND EXTENDING THE EXISTING DIMENSIONS, FOR MORE EFFICIENT COMMERCIAL NAVIGATION. FY 91 FUNDS WILL INITIATE THE FEASIBILITY PHASE OF THIS STUDY.

ILLINOIS WATERWAY AND UPPER MISSISSIPPI RIVER NAVIGATION STUDIES, IL, IA, MN, MO, WI

THE ILLINOIS AND UPPER MISSISSIPPI WATERWAYS NAVIGATION STUDY WILL ENDEAVOR TO ACHIEVE A COMPREHENSIVE ANALYSIS FOR FUTURE REQUIREMENTS OF THE WATERWAY SYSTEM. THE ILLINOIS WATERWAY INCLUDES EIGHT LOCKS AND DAMS; THE UPPER MISSISSIPPI RIVER HAS 29 LOCKS AND DAMS. THE STUDIES WILL INVESTIGATE THE NEED FOR, AND FEASIBILITY OF, CAPITAL IMPROVEMENTS AND ENVIRONMENTAL MEASURES AT LOCK SITES WITHIN NCD WHERE SLOW DOUBLE LOCKAGES ARE INEFFICIENT. FY 91 FUNDS WILL BE USED TO COMPLETE THE RECONNAISSANCE PHASE FOR THE UPPER MISSISSIPPI RIVER STUDY AND TO INITIATE THE FEASIBILITY PHASE FOR THE ILLINOIS WATERWAY STUDY.

DES PLAINES RIVER, IL

IN THE DES PLAINES RIVER BASIN, ILLINOIS, THE SEPTEMBER, 1986, FLOOD OF RECORD CAUSED $35 MILLION IN DAMAGES TO 10,000 DWELLINGS AND OVER 260 COMMERCIAL STRUCTURES. IN FY 91 WE WILL BE CONTINUING THE FEASIBILITY STUDY EFFORT TOWARDS A FINAL REPORT SCHEDULED FOR COMPLETION IN SEPTEMBER 1993.

MILWAUKEE METRO AREA, WI

THE MILWAUKEE, WISCONSIN METRO AREA, IS HIGHLY URBANIZED AND RECEIVES FLOODING FROM FIVE MAJOR STREAMS IN THE AREA. ONE PERSON DIED IN THE RECORD FLOOD OF AUGUST 1986 WHICH CAUSED TOTAL DAMAGES OF $6 MILLION. FY 91 FUNDS WILL COMPLETE THE RECONNAISSANCE PHASE.

WEST DES MOINES, IA

WEST DES MOINES, IOWA IS DAMAGED BY PERIODIC FLOODING OF STREAMS TRIBUTARY TO THE DES MOINES RIVER. THE AUTHORIZED PROJECT WOULD PROVIDE PROTECTION AT A TOTAL ESTIMATED COST OF $18.7 MILLION. THE BENEFIT TO COST RATIO IS 1.8 TO 1. THE GENERAL DESIGN MEMORANDUM WILL BE COMPLETED IN FY 90 WITH PLANS AND SPECIFICATIONS SCHEDULED FOR COMPLETION IN SEPTEMBER 1991.

FORT WAYNE, INDIANA

PRECONSTRUCTION ENGINEERING AND DESIGN ON THE FORT WAYNE, INDIANA PROJECT IS CONTINUING. THE FEBRUARY 1982 FLOOD, WHICH RANKS SECOND TO THE RECORD FLOOD OF 1913, CAUSED OVER $50 MILLION IN DAMAGES. THE FY 91 FUNDS WILL BE USED TO COMPLETE THE GENERAL DESIGN MEMORANDUM.

CONSTRUCTION GENERAL

I WOULD NOW LIKE TO DISCUSS OUR FY 91 CONSTRUCTION GENERAL PROGRAM. THE BUDGET REQUEST IS FOR 91.8 MILLION DOLLARS WHICH WOULD SUPPORT 12 PROJECTS. NOTE THAT THERE ARE NO NEW STARTS IN THE CONSTRUCTION GENERAL PROGRAM. IN FY 91, THERE WILL BE ONE COMPLETION, THE NORTH BRANCH OF THE CHICAGO RIVER RESERVOIR PROJECT.

CONSTRUCTION COMPLETIONS

NORTH BRANCH, CHICAGO RIVER, ILLINOIS

WE WILL FINISH THE CONSTRUCTION OF THE THREE RESERVOIRS AND ALSO COMPLETE REIMBURSEMENT IN FY 91 TO THE LOCAL SPONSOR FOR PREVIOUS CONSTRUCTION OF FOUR OTHER RESERVOIRS IN THE BASIN. I WILL NOW HIGHLIGHT SOME OF OUR MAJOR CONTINUING CONSTRUCTION PROJECTS.

PRESQUE ISLE PENINSULA, PA

AT PRESQUE ISLE, NEAR ERIE, PENNSYLVANIA WE ARE PLACING BEACH NOURISHMENT AND CONSTRUCTING A SYSTEM OF 58 OFFSHORE BREAKWATERS. THE PROJECT WILL PROVIDE EROSION CONTROL FOR THE PENINSULA AND STATE PARK FACILITIES. CONSTRUCTION STARTED LAST OCTOBER AND IS SCHEDULED FOR COMPLETION IN NOVEMBER 1992. MY FY 91 BUDGET REQUEST WILL FURTHER CONSTRUCTION TO 51% COMPLETION.

ROCHESTER, MINNESOTA

MUCH OF ROCHESTER, MINNESOTA LIES WITHIN THE FLOODPLAIN OF THREE STREAMS IN THE AREA. CONSTRUCTION OF PROJECT IMPROVEMENTS TO PREVENT FLOODING SUCH AS THIS 1978 EVENT IS PROGRESSING. THE OVERALL PROJECT IS 16 PERCENT COMPLETE. (400-YEAR LEVEL OF PROTECTION) MY FY 91 REQUEST WILL RESULT IN 43% COMPLETION.

SOURIS RIVER, NORTH DAKOTA

AN INTERNATIONAL AGREEMENT WITH CANADA HAS BEEN SIGNED FOR THE SOURIS RIVER, NORTH DAKOTA FLOOD CONTROL PROJECT AND THE LOCAL COOPERATION AGREEMENT IN NORTH DAKOTA HAS BEEN EXECUTED. ONE OF TWO CANADIAN RESERVOIRS, RAFFERTY DAM, IS WELL UNDERWAY, TO PROVIDE STORAGE AGAINST FLOODING DOWNSTREAM IN NORTH DAKOTA. THE OTHER, ALAMEDA DAM, WILL BE UNDER CONSTRUCTION THIS YEAR. ENVIRONMENTAL ISSUES HAVE TEMPORARILY HALTED CONSTRUCTION IN SASKATCHEWAN. IN

ANTICIPATION OF A RESUMPTION IN CONSTRUCTION, OUR BUDGET REQUEST IN FY 91 WILL FURTHER OVERALL PROJECT COMPLETION TO 81%. THIS WILL INCLUDE CONSTRUCTION OF LEVEE IMPROVEMENTS AND ALTERATION OF WILDLIFE REFUGE STRUCTURES IN NORTH DAKOTA AND FURTHER REIMBURSEMENT TO THE CANADIANS FOR FLOOD STORAGE CAPACITY.

BASSETT CREEK, MINNESOTA

WE ARE MAKING GOOD PROGRESS ON THE BASSETT CREEK, MINNESOTA FLOOD CONTROL PROJECT WHICH IS 34% COMPLETE. FUNDS REQUESTED IN FY 91 WILL CONTINUE TUNNEL AND CHANNEL CONSTRUCTION TO 93% COMPLETION.

SHEYENNE RIVER, NORTH DAKOTA

WE WILL INITIATE CONSTRUCTION OF THE SHEYENNE RIVER, NORTH DAKOTA PROJECT THIS FISCAL YEAR. UPON COMPLETION, IT WILL PREVENT DAMAGES CAUSED BY EVENTS SUCH AS THE 1978 FLOOD. FY 91 FUNDS WILL BE USED TO FURTHER CONSTRUCTION TO 42% COMPLETION.

UPPER MISSISSIPPI RIVER SYSTEM ENVIRONMENTAL MANAGEMENT PROGRAM

ONE OF OUR HIGH PRIORITY EFFORTS IS THE UNIQUE UPPER MISSISSIPPI RIVER SYSTEM ENVIRONMENTAL MANAGEMENT PROGRAM (EMP), WHICH IS REHABILITATING AND ENHANCING IMPORTANT FISH AND WILDLIFE HABITAT, AND IMPLEMENTING LONG-TERM RESOURCE MONITORING IN THE FIVE STATES BORDERING THE UPPER MISSISSIPPI. FOUR HABITAT PROJECTS HAVE BEEN COMPLETED. FOUR ARE UNDER CONSTRUCTION. FIVE HAVE BEEN APPROVED FOR CONSTRUCTION AND 27 ARE IN VARIOUS STAGES OF DESIGN. WE HAVE IDENTIFIED MANY MORE POTENTIAL PROJECT SITES. THE EMP IS BEING CONSIDERED A MODEL FOR FUTURE EFFORTS AROUND THE NATION AND WE ARE PROUD TO BE PART OF THIS UNIQUE INITIATIVE.

MR. CHAIRMAN, I AM ALSO PLEASED TO ADD THAT OUR MISSISSIPPI RIVER WEAVER BOTTOMS ENVIRONMENTAL PROJECT WAS RECENTLY AWARDED THE CHIEF OF ENGINEERS 1990 AWARD OF EXCELLENCE. THIS PROJECT WAS THE PROTOTYPICAL FORERUNNER OF THE EMP. SINCE THE 1930'S THE AREA HAS SUFFERED FROM A CONTINUING LOSS OF AQUATIC VEGETATION AND FISH AND WILDLIFE HABITAT. THE PROJECT USED PREVIOUSLY DREDGED MATERIAL TO CLOSE SIDE CHANNELS AND BUILD HABITAT ISLANDS. THIS WILL REDUCE FUTURE MAINTENANCE COSTS DUE TO LESS SEDIMENTATION IN THE NAVIGATION CHANNEL AND INCREASE CAPACITY AT THE SITE FOR ECONOMICAL FUTURE DISPOSAL OF DREDGED MATERIAL.

O&M PROGRAM

LET'S NOW FOCUS OUR ATTENTION ON THE DIVISION'S REQUEST FOR OPERATIONS, MAINTENANCE, AND THE UPKEEP OF OUR EXISTING FACILITIES. OUR FY 91 BUDGET REQUEST OF $183 MILLION INCLUDES $173.7 MILLION FOR PROJECT OPERATIONS AND MAINTENANCE AND APPROXIMATELY $9.5 MILLION FOR MAJOR REHABILITATION EFFORTS. ANOTHER WAY OF LOOKING AT THOSE TWO CATEGORIES IS BY VIEWING EACH TYPE OF PROJECT THAT THEY CONTAIN. THIS CHART ILLUSTRATES THOSE MAJOR TYPE OF PROJECTS: NAVIGATION, FLOOD CONTROL, MULTIPURPOSE, AND NAVIGATION PROTECTION. OUR TOTAL OF $183 MILLION IS ESSENTIALLY THE SAME AS OUR FY 90 ALLOCATION. LET'S EXAMINE THE REQUEST IN GREATER DETAIL. I WILL CONCENTRATE ON THE LARGEST PROJECT TYPE WHICH IS NAVIGATION AT $155.8M WHICH INCLUDES $57.8 MILLION FOR CHANNELS AND HARBORS, CONSISTING PRIMARILY OF $26.3 MILLION FOR DREDGING AND $19.5 MILLION FOR STRUCTURAL REPAIRS.

OPERATION AND MAINTENANCE
($000)

	FY 1990 ALLOCATION	FY 1991 REQUEST	INCREASE OR DECREASE
1. NAVIGATION	$159.2	$155.8	$ - 3.4
2. FLOOD CONTROL	12.6	13.8	+ 1.2
3. MULTIPLE PURPOSE PROJECT INCLUDING POWER	10.8	12.7	+ 1.9
4. PROTECTION OF NAVIGATION	.6	.8	+ .2
TOTAL OPERATION AND MAINTENANCE	$183.2	$183.1	$ - .1

NEXT IS DIKED DISPOSAL. ON THE GREAT LAKES, WE MUST CONFINE POLLUTED MATERIAL DREDGED FROM SOME HARBORS AND CHANNELS. THE BUDGET REQUEST INCLUDES $800,000 FOR A SECOND DIKED DISPOSAL PROJECT AT GREEN BAY, WISCONSIN SIMILAR TO THE EXISTING STRUCTURE. UNDER THE DIKED DISPOSAL PROGRAM, 27 DISPOSAL SITES HAVE BEEN COMPLETED. DISPOSAL SITES AT OTHER PROJECTS ARE NOW BEING DESIGNED WILL BE AND CONSTRUCTED UNDER ORIGINAL PROJECT AUTHORITIES RATHER THAN THE DIKED DISPOSAL PROGRAM.

THE NEXT CATEGORY IS LOCKS, DAMS, AND CANALS. LOCKS AND DAMS SUCH AS THIS ARE ESSENTIAL FOR COMMERCIAL NAVIGATION. WE ARE REQUESTING $87.7 MILLION FOR OPERATIONS AND MAINTENANCE OF OUR LOCKS AND DAMS. PRIMARILY ON THE UPPER MISSISSIPPI AND ILLINOIS RIVERS.

MAJOR REHABILITATION

THE NEXT CATEGORY IS MAJOR REHABILITATION. OUR FY 91 REQUEST IS FOR $9.5 MILLION. FUNDS IN FY 90 WILL COMPLETE WORK ON THE ILLINOIS

WATERWAY. WITH FY 91 FUNDS, WE WILL COMPLETE 21 OF OUR 22 ONGOING MAJOR REHAB PROJECTS. WE ARE CONTINUING SIMILAR WORK AT THE REMAINING LOCKS AND DAMS UNDER OUR REGULAR O&M PROGRAM. MR. CHAIRMAN, THAT COMPLETES OUR FY 91 BUDGET REQUEST BUT BEFORE I CONCLUDE MY REPORT, LET ME TAKE A MOMENT TO UPDATE YOU ON ITEMS THAT HAVE BEEN OF INTEREST TO THE COMMITTEE. THESE ITEMS ARE THE STATUS OF COMMERCIAL NAVIGATION, CURRENT LAKE LEVELS, AND OUR IJC ACTIVITIES.

USE OF NAVIGATION PROJECTS

THIS SLIDE SHOWS OUR IMPORTANT GREAT LAKES AND RIVER BORNE COMMERCIAL NAVIGATION SYSTEM. SHIPPING TONNAGES DECREASED SINCE LAST YEAR, ON THE ILLINOIS WATERWAY ABOUT 8% WHILE INCREASING ON THE MISSISSIPPI 2% AND DECREASING 5% AT THE SOO LOCKS.

WATER LEVELS

ON THE GREAT LAKES, IN ADDITION TO COMMERCIAL NAVIGATION WE ARE ALSO CONCERNED WITH FLUCTUATING WATER LEVELS. THIS CHART SHOWS DEVIATIONS IN INCHES FROM LONG TERM AVERAGES COMPARING FEBRUARY 89 TO FEBRUARY 90. SINCE THE RECORD HIGH LEVELS OF THE MID-1980'S, OUR LAKES, ON THE AVERAGE, ARE NOW BELOW THEIR LONG-TERM AVERAGE LEVELS.

SUPPORT TO INTERNATIONAL JOINT COMMISSION

IN ADDITION TO OUR REGULAR PROGRAMS, WE ALSO SUPPORT THE INTERNATIONAL JOINT COMMISSION (IJC) ON BOUNDARY WATERS SHARED WITH CANADA. I AM THE U.S. CHAIRMAN ON THESE IJC BOARDS. IN RESPONSE TO AN IJC REFERENCE TO EXAMINE BOTH HIGH AND LOW WATER LEVELS ON THE GREAT LAKES, WE HAVE COMPLETED THE PHASE I REPORT AND WE NOW STAND READY TO PROCEED WITH PHASE II - THE DETAILED EVALUATION OF SELECTED MEASURES.

CONCLUSION

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE, THIS CONCLUDES OUR STATUS REPORT. THE NORTH CENTRAL DIVISION HAS A DYNAMIC REGION OF RESPONSIBILITY. WE ARE LOOKING FORWARD TO THE CHALLENGES OF THE FUTURE AND THE CONTINUATION OF OUR FOCUS FOR SAFE MISSION EXECUTION AND CUSTOMER SATISFACTION. I AM READY TO ANSWER ANY QUESTIONS YOU MAY HAVE.

THANK YOU.

Mr. **Bevill**. Thank you. We will insert the justification material for the North Central Division in the record at this point, without objection.

[The information follows:]

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1991

SUMMARY NORTH CENTRAL DIVISION

	FY 1990 ALLOCATION	FY 1991 REQUEST	INCREASE OR DECREASE
General Investigations			
Surveys	$ 2,621,000	$ 3,375,000	$ + 754,000
Preconstruction Engineering and Design	3,950,000	3,493,000	- 457,000
Construction, General			
Construction	114,992,000	91,858,000	- 23,134,000
Dam Safety Assurance	1,200,000	0	- 1,200,000
Operation and Maintenance, General			
Project Operation and Maintenance	163,362,000	173,670,000	+ 10,308,000
Major Rehabilitation	19,838,000	9,475,000	- 10,363,000
TOTAL	$305,963,000	$281,871,000	$- 24,092,000

29 JAN 1990

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 North Central Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
1. SURVEYS - NEW None					
2. SURVEYS - CONTINUING					
2a. Navigation: The amount of $180,000 is requested in Fiscal Year 1991 to continue one study for Navigation.					
MICHIGAN					
St. Joseph Harbor	418,000	0	129,000	180,000	109,000

St. Joseph Harbor is located on the east shore of Lake Michigan, 60 miles east of Chicago, Illinois, and 24 miles south of South Haven, Michigan. The study will investigate the advisability of extending the navigable channel of the St. Joseph River upstream from the existing Federal project limit, constructing a wider turning basin upstream from the present basin, deepening the navigable channel to 27 feet, and closing the Morrison Channel to commercial navigation. These improvements would open up new dockage areas to handle additional materials, modernize the harbor and maintain its capability to meet the commercial needs of southwestern Michigan, and enable local roads to be improved without unnecessary bridges. The Berrien County Board of Commissioners and the City Manager for the City of St. Joseph, Michigan, support the study. In a 3 November 1988 letter, the Michigan Department of Transportation, the local sponsor, expressed support for 50-50 percent cost sharing of the feasibility phase of the study. The St. Joseph River Board of Harbor Commissioners, in a 2 November 1988 letter, stated its support for the study.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase of the study. The funds requested for Fiscal Year 1991 will be used to initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $564,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of cost-sharing is as follows:

Total Estimated Study Cost	$ 700,000
Reconnaissance Phase (Federal)	136,000
Feasibility Phase (Federal)	282,000
Feasibility Phase (Non-Federal)	282,000

29 JAN 1990

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991

St. Joseph Harbor, MI (Continued)

The reconnaissance phase is scheduled for completion 12 months after receipt of funds. The feasibility phase report of the Division Commander is scheduled for completion in September 1992.

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
SUB-TOTAL - NAVIGATION	418,000	0	129,000	180,000	109,000

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

2b. Flood Damage Prevention: The amount of $1,108,000 is requested in Fiscal Year 1991 to continue six flood damage prevention studies.

ILLINOIS

Des Plaines River	1,530,000	810,000	214,000	200,000	306,000

The Des Plaines River Basin, in Lake and Cook Counties in northeastern Illinois, has a drainage area of about 500 square miles. Much of the study area is becoming urbanized, however, portions of the basin are being kept as undeveloped open lands for recreation. Sixteen damaging floods have occurred since 1938, including the floods of 1986, 1987, and 1989. The September 1986 flood caused an estimated $35 million in damage to 10,000 dwellings and 263 business and industrial sites. Over 15,000 residents were evacuated from the flooded area. Damage estimates for the August 1987 flood were in excess of $77 million, with a significant portion of them occurring in the Salt Creek basin, a tributary of the Des Plaines River. Flooding in the basin is due to the inadequate capacity of the existing channel to carry peak flows during major storm events. Potential solutions to this problem include levees, modification of an existing dam, check dams with on-line storage, and non-structural measures.

Fiscal Year 1989 and 1990 funds were used to initiate the Feasibility Phase of the study. Fiscal Year 1991 funds will be used to continue the Feasibility Phase. The preliminary estimated cost of the Feasibility Phase is $1,800,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. The State of Illinois indicated its willingness to share in the Feasibility Study costs by letter dated 25 October 1986. Up to one half of non-federal share may be in-kind services. The Water Reclamation District of Greater Chicago is very supportive of the study and has agreed to furnish a portion of the required local cost share funding to the State for the Feasibility Phase. The City of Des Plaines is cooperating with the State by funding the investigation and analysis of the Prairie-Farmers Creek flooding problem. Lake County has also indicated its interest in the study. A summary of study cost sharing requirements is as follows:

Total estimated study costs	$2,430,000
Reconnaissance Phase (Federal)	630,000
Feasibility Phase (Federal)	900,000
Feasibility Phase (non-Federal)	900,000

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
Des Plaines River, IL (Continued)					

The Reconnaissance Report was completed in February 1989, and the negotiations were initiated for the Feasibility Cost Sharing Agreement. The Feasibility Phase of study is scheduled for completion in September 1993.

IOWA

Black Hawk County	400,000	0	71,000	89,000	240,000

Black Hawk County is located in east central Iowa. The County is a growing area with a 1980 population of 137,961. Interstate 380 has recently been completed and has induced substantial development in the County. The major urban areas are Waterloo, Iowa's 5th largest city, Cedar Falls, and Evansdale. The area is plagued with flood problems from the many streams that flow through the County. Flooding along the Cedar River and its tributaries is significantly affected by such factors as hydraulic constrictions caused by bridges, culverts, debris, and ice jams. The Cedar River runs diagonally across the county from northwest to southeast. Other major streams in the County are the Wapsipinicon River, Black Hawk Creek, and Crane Creek. The flood of record, in 1961, caused $463,000 in damages. The 1968 flood on the Cedar River caused three deaths and an estimated $550,000 in damage. Serious flooding also occurred in 1947, 1965, 1969, and 1974. The majority of floods occur during the spring or early summer as a result of heavy rainfall, snow melt, or both. Flood damages to the unincorporated areas of Black Hawk County are increasing and include crop losses, livestock losses, farmstead damages, and damages to bridges and roadways. A related water resource concern is the adverse impact of sediment and snags on water based recreation activities in the Waterloo-Cedar Falls area. The study has been strongly supported by city officials from Waterloo and Cedar Falls, and the Iowa Department of Transportation.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase, and negotiate and sign the feasibility study cost sharing agreement. The preliminary estimated cost of the Feasibility Study is $480,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

29 JAN 1990

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 North Central Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
Black Hawk County, IA (Continued)					

Total Estimated Study Cost	$640,000
Reconnaissance Phase (Federal)	$160,000
Feasibility Phase (Federal)	$240,000
Feasibility Phase (non-Federal)	$240,000

The completion of the reconnaissance phase of this study is scheduled for June 1991. The feasibility phase of study is scheduled for completion in October 1994.

MINNESOTA

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
Crookston	905,000	191,000	143,000	290,000	281,000

Crookston is located on the Red Lake River in northwestern Minnesota, about 15 miles east of the Minnesota - North Dakota border and about 85 miles south of the Minnesota - Canada border. The principal water resource problems at Crookston are flooding and riverbank erosion and instability. The average annual flood damages at Crookston are estimated at about $2.7 million, most of which is sustained by about 800 residences in the floodplain. The flood of 1950 inundated most of the floodprone properties. However, for subsequent floods, the City of Crookston had erected temporary levees that, together with flood fighting efforts, have prevented major damages to the residential areas. These levees were not constructed to permanent levee criteria and have deteriorated. The Red Lake River is one of the quickest rising streams in the Red River of the North basin, which, together with the condition of the levees, results in a high flood hazard situation for the city. In 1989, a heavy snow pack and major ice jams on the river provided a high potential for significant flood levels at Crookston. However, a cold spell during the normal snow melt period moderated flood levels and only light damages were incurred. The principal purpose of the study is to evaluate flood damage reduction measures for the City of Crookston. The city understands cost sharing requirements for the feasibility phase. The local residents are concerned with the deteriorating condition of their levee system and the high potential risk for catastrophic damages that could occur with a recurrence of the 1969 or the 1979 floods. The floodprone areas of the city are located in several separable reaches. The feasibility within each reach would be investigated, as some reaches have large numbers of residences.

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
Crookston, MN (Continued)					

Fiscal Year 1990 funds are being used to continue the reconnaissance phase. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase at full Federal expense and initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,110,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,460,000
Reconnaissance Phase (Federal)	350,000
Feasibility Phase (Federal)	555,000
Feasibility Phase (Non-Federal)	555,000

The reconnaissance phase is scheduled for completion in January 1991. The feasibility phase is scheduled for completion in November 1992.

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
Red Lake and Clearwater Rivers, MN	500,000	0	48,000	152,000	300,000

The study area covers the central portion of the watershed of the Red Lake and Clearwater Rivers in northwestern Minnesota. The Red Lake River, a tributary to the Red River of the North, begins at the outlet of Upper and Lower Red Lakes and enters the Red River of the North at East Grand Forks, Minnesota. The Clearwater River enters the Red Lake River at Red Lake Falls. An authorized project, completed in 1956, included channel modifications on both the Red Lake and Clearwater Rivers and an outlet control structure for the Upper and Lower Red Lakes. The Red Lake Dam is a Corps of Engineers project for flood control and for water supply and pollution abatement during low-flow periods. A Problem Appraisal Report for the Red Lake-Clearwater Rivers project, completed in 1985, concluded that several of the project features needed further evaluation and recommended that a reconnaissance study be conducted to address added flood control and water needs of the Red Lake-Clearwater Rivers, Minnesota, area. Problems identified in the project area include increased flooding of downstream urban and agricultural interests and increased demand on the stream flow for water supplies and pollution abatement during low-flow periods. The Red Lake Watershed District has expressed strong interest in sponsoring the study. The Watershed District is primarily interested in the development of a number of flood damage reduction alternatives, including several smaller strategically located reservoirs, and a multiple purpose connecting channel and reservoir between the Red Lake and

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
Red Lake and Clearwater Rivers, MN (Continued)					

Clearwater Rivers. The latter alternative would address many of the identified needs in the area. Other groups that have expressed interest or who might want to sponsor the study are the Chippewa Indian Nation Tribal Council, the Red Lake Band of Chippewa Indians, Ducks Unlimited, the Minnesota Department of Natural Resources, and wild rice growers on the Clearwater River. All groups were made aware of the requirement for study cost-sharing, and did not state any opposition to such cost-sharing. Flood damages downstream of Red Lake Dam were estimated at $234,000 in 1978, $682,000 in 1979, and $700,000 in 1985. Damages attributed to the operation of Red Lake Dam have been claimed by three basic groups in the Red Lake area since the late 1950's: (1) the Waskish area resort interests on the east end of Upper Red Lake; (2) the Red Lake Reservation Indians on both Upper and Lower Red Lakes; and (3) agricultural interests downstream of Red Lake Dam and the Indian Reservation. In addition, other flood control, fish and wildlife, water supply, streambank erosion, and wetland agricultural needs have been identified on the Red Lake Indian Reservation, as well as other basin areas located upstream of Crookston.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase at full Federal expense. The preliminary estimated cost of the feasibility phase is $600,000 which is to be shared by Federal and non-Federal interests on a 50-50 percent basis. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$800,000
Reconnaissance Phase (Federal)	200,000
Feasibility Phase (Federal)	300,000
Feasibility Phase (non-Federal)	300,000

The reconnaissance phase is scheduled for completion in December 1991. The feasibility study is scheduled for completion in September 1993.

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
NORTH DAKOTA					
Grand Forks	810,000	0	133,000	177,000	500,000

Grand Forks, with a population in 1980 of 44,000, is located on the Red River of the North, about 70 miles south of the Canadian Border, across the river from East Grand Forks, Minnesota. Since 1950, eight floods have threatened the city of Grand Forks with the most recent occurring in 1989. The flood of 1979 was the largest flood experienced at Grand Forks since the 1897 flood of record. Only through a major emergency flood fight effort were the residents able to prevent $8 million in damages, however, more than $7 million in damages were still sustained. In 1989, water content levels in the snow pack were high and near record flooding was forecast. However, the actual levels of the 1989 flood were several feet lower than predicted because an extended cold spell during the snow melt run-off period kept the flood water at a reasonable and controllable stage. A small permanent levee project in one area of Grand Forks plus the flood fight effort in other areas of the city prevented significant damages. The small permanent project has prevented over $10 million in flood damages since it was constructed, and two reaches of emergency levees have been instrumental in the successful flood fights waged since 1966. However, the permanent levee does not provide the high degree of protection needed, and the emergency levee reaches are not providing any assured substantial degree of protection. The entire city is subject to inundation by the standard project flood. The principal purpose of this reconnaissance study is to evaluate flood damage reduction measures at the City of Grand Forks for floods from the Red River of the North. In October 1985, the city of Grand Forks requested assistance in developing a flood protection project for the City. The City is anticipated to be the local sponsor and is aware of the cost-sharing requirements for the feasibility phase. The reconnaissance phase would focus on levee solutions for Grand Forks. The potential for a feasible solution to the Grand Forks problems rests mainly with the identification of an acceptable levee alignment that is technically feasible. The banks of the Red River have significant stability problems, and a more extensive than normal geotechnical evaluation is necessary to complete the reconnaissance phase. The potential for catastrophic flood damages is ever present at Grand Forks. Continued reliance by local interests on some of the emergency levees provides a false sense of security. Because it is one of the largest population centers in North Dakota, flooding at Grand Forks affects the surrounding region.

2042

29 JAN 1990

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
Grand Forks, ND (Continued)					

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase of the study. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase. The preliminary estimated cost of the feasibility phase is $1,000,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,310,000
Reconnaissance Phase (Federal)	310,000
Feasibility Phase (Federal)	500,000
Feasibility Phase (Non-Federal)	500,000

The reconnaissance report is scheduled for completion in September 1991. The feasibility phase is scheduled for completion in November 1993.

WISCONSIN

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
Milwaukee Metropolitan Area	700,000	0	95,000	200,000	405,000

The Milwaukee Metropolitan area is located in southeastern Wisconsin along Lake Michigan. The city covers about 40 percent of Milwaukee County and is approximately 90 miles north of Chicago, Illinois. Except for a few parks, small farms and isolated lots, the area is completely urbanized. One creek and four rivers make up the study area. Three major rivers, the Milwaukee, the Menomonee, and the Kinnickinnic, meet in the downtown section of the city. The Menomonee River drainage basin includes the central and northwest parts of the city. The Milwaukee River drains the northern and northeastern parts of the city. The Kinnickinnic River originates in South Milwaukee. The flood plains of these three streams are heavily industrialized. The Oak Creek and Root River systems are located in the southern part of the county and discharge into Lake Michigan. Land use along Oak Creek includes industrial development in its headwaters, agriculture along the middle reaches, and open spaces along the lower reach.

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
Milwaukee Metropolitan Area, WI (Continued)					

Parkland is the predominate land use along the Root River. Severe flood problems have occurred in 1986 and 1987 along all five major streams. The worst event, on August 6, 1986, caused one fatality and total damages of $6,000,000. In a letter dated May 10, 1988, the Milwaukee Metropolitan Sewerage District stated support of the new survey study and is fully prepared to fulfill its responsibilities under the cost sharing provisions of the Water Resources Development Act of 1986.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase of the study. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase and initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,000,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of cost sharing is as follows:

Total Estimated Study Cost	$ 1,200,000
Reconnaissance Phase (Federal)	200,000
Feasibility Phase (Federal)	500,000
Feasibility Phase (Non-Federal)	500,000

The reconnaissance phase is scheduled for completion in April 1991. The completion of the Division Commander's report is scheduled for September 1993.

SUB-TOTAL - FLOOD DAMAGE PREVENTION	4,845,000	1,010,000	704,000	1,108,000	2,023,000

2044

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 North Central Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

2c. Shoreline Protection Studies: None

2d. Special Studies: None

2e. Comprehensive Studies: None

2f. Project Review Studies: The amount of $2,087,000 is requested in Fiscal Year 1991 to continue four studies and to complete one project review study.

ILLINOIS

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
Illinois Waterway Navigation	10,150,000	0	390,000	1,100,000	8,660,000

The Illinois Waterway, located entirely within the State of Illinois, is a 348-mile portion of the Inland Waterway System. The waterway connects the city of Chicago and the Great Lakes with the Mississippi River. North Central Division is responsible for operation and maintenance of 268 miles of the Illinois Waterway including the eight locks and dams. Most navigation components of the system have already exceeded their designed economic lives. Projected increases in commercial and recreational traffic on the system will cause large economic losses to the nation in the near future as congestion in the system worsens. Four Illinois Waterway locks are already included in the "Status of Inland Waterways" list of the 20 locks with the greatest levels of delay and processing times.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase of the Illinois Waterway System. The Reconnaissance Study will include: identification of the demands on the system and the key factors in the locking process causing traffic delays; identification of data needs and development of data collection methods and methods of analysis; formulation of preliminary system wide plans of improvements and estimating their economic feasibility; and identification of the most probable future conditions for the waterway, to be evaluated in the system Environmental Impact Statement during the feasibility phase.

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
Illinois Waterway Navigation, IL (Continued)					

Funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase and to initiate a feasibility study for the first priority site identified in the Reconnaissance Report. A portion of the feasibility funding would be used to produce a system Environmental Impact Statement of the entire Illinois Waterway. The feasibility phase will also be at full Federal expense, since this effort involves a portion of the Inland Navigation System.

The reconnaissance phase was initiated in November 1989 and is scheduled for completion in January 1991. The feasibility report is scheduled for completion in February 1994.

Upper Mississippi River Navigation, IL, IA, MN, MO, WI	1,100,000	0	586,000	514,000	0

The Upper Mississippi River segment of the Inland Waterway System extends from the mouth of the Missouri River near St. Louis, Missouri, northward to St. Paul, Minnesota. The North Central Division is responsible for the portion of the system north of Saverton, Missouri, and the Lower Mississippi Valley Division downstream of that point. The system is designed to accommodate a tow size of 600 feet long by 105 feet wide while today' tows are routinely 1200 feet long by 105 feet wide. The 1200 foot tows require double locking which is time consuming and costly. Eight Upper Mississippi River locks are included on the "Status of Inland Waterways" list of the 20 locks with the greatest levels of delay and processing times. These locks had total delays of 175,300 hours in 1987, more than three times the national average. Particularly critical is the five lock subsystem comprised of Lock and Dams 20, 21, 22, 24, and 25. Continued increase in traffic, as projected, will result in greater delays and expense to shippers. A Reconnaissance study, to be initiated in Fiscal Year 1990, will be undertaken jointly by St. Paul, Rock Island, and St. Louis Districts. A systems approach is necessary due to the interrelationship of traffic movement and facilities comprising the system. This will allow the most effective use of funds, the most efficient utilization of personnel and expertise within the two divisions, will help obviate institutional difficulties, and is needed at this time before a crisis level of delay time is reached on the system. The systems approach offers substantial potential future savings in study, design, and construction costs.

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991

Upper Mississippi River Navigation, (Continued)
IL, IA, MN, MO, WI

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase of the Upper Mississippi River Navigation System. The Reconnaissance Study will include: identification of the demands on the system and the key factors in the locking process causing traffic delays; identification of data needs and development of data collection methods and methods of analysis; formulation of preliminary system wide plans of improvements and estimating their economic feasibility; and identification of the most probable future, to be evaluated in the system EIS during the feasibility phase. The result of the reconnaissance report will be a prioritized schedule of follow-on feasibility studies for those improvements where a Federal interest is indicated.

Funds requested for Fiscal Year 1991 will be used to complete the reconnaissance effort. The Reconnaissance phase is scheduled for completion in September 1991.

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
MICHIGAN					
Menominee Harbor	170,000	0	67,000	103,000	0

The authorized project is located on the northwest shore of Lake Michigan 50 miles north of Green Bay, Wisconsin, and 60 miles south of Escanaba, Michigan. The River and Harbor Act of 1960 authorized the following modifications to the harbor: deepening the entrance channel to 26 feet; deepening the river channel to 24 feet from the entrance piers to the municipal wharf; and enlarging the existing turning basin by dredging a two acre area on the eastern edge. The study has been in a deferred status since May 1981. Current harbor users contend that the present depths at the harbor, which are three feet less than the authorized depths, are inadequate to accommodate present and future transportation needs. The restricted depth severely limits the movement of both incoming and outgoing shipments of materials and produce and is curtailing the expansion of new overseas business. Currently, ships are forced to light-load at Menominee Harbor. The harbor serviced 124,000 tons of bulk commodities in 1981, 131,000 tons in both 1982 and 1983, 176,000 tons in 1984, 119,000 tons in 1985, 189,000 tons in 1986, and 91,500 tons in 1987. These include coal, lignite, sand, gravel, crushed rock, and mineral products.

The local sponsors are the Michigan Department of Natural Resources and the city of Menominee, Michigan. The state expressed a high priority for the restudy at the June 1989 State Coordination Meeting. The Mayor of Menominee, via a March 29, 1989 letter, expressed support of the project improvements, noting the millions of dollars invested in the last three years in dock improvements and shoreside facilities in anticipation of project construction. Two major industries on the Menominee River have expressed their strong support for the project and explained how the project improvements would help enhance their respective future operations. The State of Michigan Department of Transportation met with the Mayor of Marinette, Wisconsin, city of Menominee, and several local waterfront industries in May 1989 to review the status of the project and the need for the restudy to reconfirm project feasibility and cost sharing. A city of Menominee Tax Incremental Financing District for the river-front exists and would be used as a source for local cost shared funds. The Mayor of Menominee in a September 20, 1989 letter has reaffirmed a willingness to sponsor the project, dredge the Menominee River, and cost share this project.

Fiscal Year 1990 funds will be used to initiate the reconnaissance phase of the restudy effort and would involve a review of project economic feasibility to include identification of project features. Alternative project depths, configurations, and channel lengths would also be evaluated to reduce project costs and present the optimum project plan. Fiscal Yyear 1991 funds would be used to complete the reconnaissance phase of the restudy in March 1991.

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
NORTH DAKOTA					
Wahpeton, ND - Breckenridge, MN	285,000	100,000	110,000	60,000	15,000

Wahpeton and Breckenridge are located at the junction of the Bois de Sioux River on the border between North Dakota and Minnesota and the Ottertail River in Minnesota. Also located on that border and formed by the junction of these two rivers is the Red River of the North. The Wahpeton-Breckenridge area receives some flood control benefit from the operation of two federal reservoirs: Lake Traverse on the Bois de Sioux River and Orwell Reservoir on the Ottertail River. However, the reservoirs have limited storage capacity and a significant amount of drainage area lies between the reservoirs and the cities. Thus, the cities continue to receive damages from floods and must undertake significant flood fights during periods of high water, such as in 1969, 1979, and most recently, 1989. The agricultural areas located downstream of the reservoirs are subject to flooding during summer rainstorms. A 13.9 mile channelization project located on the Bois de Sioux and Red Rivers was authorized in 1948, but was never constructed because of marginal economic feasibility at that time. In letters dated March 27, 1987 and April 16, 1987, the City of Breckenridge and the Richland County Board, North Dakota, respectively, requested a restudy of the project. This study will address urban and agricultural flood damage reduction, fish and wildlife enhancement, and recreation.

Fiscal Year 1990 funds will be used to initiate the feasibility phase. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase of the study. The estimated cost of the feasibility phase is $320,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$445,000
Reconnaissance phase (Federal)	125,000
Feasibility Phase (Federal)	160,000
Feasibility Phase (non-Federal)	160,000

The reconnaissance phase is scheduled for completion in August 1990. The feasibility phase is scheduled for completion in September 1992.

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Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
WISCONSIN					
Fox River	725,000	225,000	190,000	310,000	0

The Fox River is located in east - central Wisconsin. The existing federal project includes: water level and flow regulation responsibilities for Lake Winnebago and the Lower Fox River, including locks, dams, and channels on the Lower Fox River from Depere to Menasha; four harbors on Lake Winnebago; channels on the upper Fox River from Lake Winnebago at Oshkosh to its junction with the Wolf River in Lake Butte des Morts; and channels on the Wolf River from its mouth in Lake Butte des Morts to New London, Wisconsin. The project was originally purchased by the Federal government primarily for commercial navigation. Commercial traffic has been almost non-existent since 1959. Today, the project provides for recreational navigation, flood control, hydropower, water supply, and environmental enhancement. On April 8, 1988, a Draft Disposition Report was transmitted to the Governor of Wisconsin requesting an expression of interest and willingness from the State to accept transfer of the responsibility for the entire Fox River Project. The Governor provided a response to the draft report, on August 19, 1988, expressing disagreement with the report conclusions and highlighting many concerns and issues such as alternative project purposes and water rights that require investigation by the Corps of Engineers. The Detroit District Engineer met with the Governor of Wisconsin on September 12, 1989, to present the coordinated and approved Corps of Engineers' position on a final disposition of the Fox River Project, discuss options, and reach agreement on a schedule for the State's position on the project. Fiscal Year 1990 funds will be used to continue coordination of project disposition with the State or other non-Federal entities and conduct hydraulics and hydrology, economic, environmental and planning studies pursuant to completing a final Section 216 investigation on disposition of the Fox River project. The funds requested for Fiscal Year 1991 will be used to complete the Disposition Report by September 1991.

	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
SUB-TOTAL - PROJECT REVIEW	16,915,000	325,000	1,318,000	2,087,000	13,185,000
TOTAL - SURVEYS	22,178,000	1,335,000	2,151,000	3,375,000	15,317,000

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

3. PRECONSTRUCTION ENGINEERING AND DESIGN - NEW None

4. PRECONSTRUCTION ENGINEERING AND DESIGN - CONTINUING

4a. Navigation: The amount of $1,049,000 is requested in Fiscal Year 1991 to continue three projects and to complete one navigation preconstruction engineering and design project.

MICHIGAN

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
Great Lakes Connecting Channels and Harbors (Final Report),MI,MN,WI	650,000	0	95,000	360,000	195,000

The recommended plan provides for deepening areas along the upper St. Marys River and within Duluth-Superior Harbor to permit a maximum safe vessel draft of 26 1/2 feet at Low Water Datum, to take advantage of long term mean water levels on the lower Lakes Michigan, Huron, and Erie. The city of Duluth expressed its desire, in a January 8, 1988 letter, to act as the local sponsor for improvements on the Duluth side of the Harbor. In a joint letter dated May 26, 1988, the State of Michigan stated that it is willing to act as the local sponsor and the Lake Carriers' Association has assured its willingness to pay the non-Federal share of the upper St. Marys River portion of the project. The city of Superior has not provided a letter of intent to sponsor their portion of the project. The cost of the recommended project is $9,110,000. The average annual benefits amount to $22,100,400 and the average annual costs are $910,900 resulting in a benefit-to-cost ratio of 24.3 to 1.

The project would be cost shared, consistent with the Water Resources Development Act of 1986. The Federal cost is presently estimated at $6,070,000, which includes $2,706,300 for the upper St. Marys River, $2,331,200 for the Duluth Entrance, and $1,032,500 for the Superior Entrance. Local interests will be required to provide lands, easements, rights-of-way, and required disposal areas, presently estimated at $377,400; pay 25% of the construction costs for general navigation features of the project, presently estimated at $2,093,400, which includes $903,800 for the St. Marys River, $845,500 for the Duluth Entrance and Basin Areas and $344,100 for the Superior Entrance and Basin Areas; and pay an additional 10 percent of the costs within a period of 30 years following project completion which includes $364,100 for St. Marys River and $205,100 for Duluth Entrance and Basin. For the

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
Great Lakes Connecting Channels and Harbors (Final Report),MI,MN,WI (Continued)					

Superior Entrance and Basin, the non-Federal credit for lands, easements, rights-of-way and disposal area costs is greater than 10 percent of the costs; therefore, the local sponsor would not be required to make any additional payment.

Fiscal Year 1990 funds are being used used to initiate the General Design Memorandum, conduct a hydrographic survey and sediment testing, and initiate review and preliminary design of dredge disposal alternatives. Fiscal Year 1991 funds will be used to complete the General Design Memorandum. Preconstruction Engineering and Design is scheduled for completion in September 1992.

Monroe Harbor, MI	2,325,000	567,000	250,000	100,000	1,408,000

Monroe Harbor lies within the city of Monroe, Michigan, on the western shore of Lake Erie. The harbor is 17 miles north of Toledo, Ohio, and 36 miles south of Detroit, Michigan. The authorized project includes deepening the River Raisin portion of the channel to 27 feet, widening to 500 feet and deepening to 28 feet both the existing and an extended channel in Lake Erie, providing a new turning basin near the shore and south of the channel to permit turning of Class 10 vessels (1000 feet long), and constructing a 190 acre confined disposal facility for the dredged material, which would also provide protection to and improve wetlands in Plum Creek Bay. The Final Survey Report recommending authorization of the project was submitted to Congress on 14 May 1985. The project, authorized for construction by the Water Resources Development Act of 1986, is estimated to cost $150,000,000. A reevaluation of project benefits and costs was completed in September 1989, resulting in a reduction in the scope of the authorized project. The currently proposed project is estimated to cost $32,100,000.

The project was authorized for construction by the Water Resources Development Act of 1986. The Federal cost is presently estimated at $20,878,000, including $40,000 for U.S. Coast Guard work. Local interests will be required to provide lands, easements, rights-of-way, relocations and required confined disposal areas; pay 25 percent of the construction costs for general navigation features, presently estimated at $8,025,000; and pay an additional 10 percent of the construction costs for general navigation features within a period of 30 years following completion, presently estimated at $3,197,000.

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
Monroe Harbor, MI (Continued)					

Fiscal Year 1990 funds are being used to continue the finalization of coordination with the potential local sponsor, environmental analyses, and soil investigations. Funds requested for Fiscal Year 1991 will be used to continue the General Design Memorandum with emphasis on coordination with the local sponsor and on environmental analyses. Preconstruction Engineering and Design is scheduled to be completed in August 1993.

NEW YORK

Olcott Harbor	1,400,000	750,000	286,000	364,000	0

Olcott Harbor, located in Niagara County on the south shore of Lake Ontario at the mouth of Eighteenmile Creek, is an existing Federal navigation project that consists of two jetties in the lake at the creek mouth, and a 12-foot deep entrance channel between the jetties. The harbor is a popular base for recreational boating; and all usable mooring areas are filled to capacity. The immediate area is rural, but, boaters are attracted from throughout the Buffalo-Niagara Falls urban area and Canada. Additional lake access is needed for the developing fishing resources in Lake Ontario. Improvement of Olcott Harbor can meet part of the need for boat berthing space for recreational and commercial (charter boats) craft, provide a harbor-of-refuge for recreational boats, and provide fishing access. The authorized project, estimated to cost $13,840,000, includes construction of two detached breakwaters, a stone jetty, channel dredging, and recreational fishing facilities, including a foot-bridge, walkways, guardrails, sanitary facilities, and parking areas. The average annual benefits are $1,563,800 and include $1,256,500 for Recreational Navigation, $17,400 for Harbor-of-Refuge, $240,700 for Recreational Fishing and $49,200 for Area Redevelopment. The benefit-to-cost ratio is 1.13 to 1.

The project is authorized for construction by the Water Resources Development Act of 1986. The Federal cost is presently estimated at $6,960,000, of which $80,000 is for Coast Guard work. Local interests will be required to provide lands, easements, rights-of-way and required disposal areas, modify or relocate buildings, utilities, roads, and other facilities, where necessary for the construction of the project; pay one-half of the separable and joint costs allocated to recreational navigation and fishing facilities, all presently estimated at $6,880,000; and bear all costs of operation, maintenance and replacement of recreational navigation and fishing facilities, presently estimated at $34,800. Local interests will also agree to make all required payments concurrently with project construction.

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

Olcott Harbor, NY (Continued)

Fiscal Year 1990 funds will be used to complete the Reevaluation Report and initiate the General Design Memorandum (GDM). The funds requested for Fiscal Year 1991 will be used to complete the GDM, and initiate and complete the Plans and Specifications. Preconstruction Engineering and Design is scheduled for completion in September 1991.

WISCONSIN

Fox River Channel Green Bay	950,000	0	71,000	225,000	654,000

The existing Federal project consists of an entrance channel in Green Bay from the natural 26-foot bottom contour 11.5 miles to the mouth of the Fox River, a river channel 7.2 miles upstream from the mouth and three turning basins. Authorized Project depths range from 26 feet at low water datum in the entrance channel for a distance of approximately 6 miles, then 24 feet to the river mouth, 24 feet to the Chicago and Northwestern Railway bridge, then decreasing to 18 feet at the DePere turning basin. The project is complete except for deepening a portion of the river channel from the Chicago and Northwestern Railway bridge upstream 1,700 feet. Local officials have indicated an interest in deepening the entrance and river channels to provide a project depth of 27 feet, compatible with the existing project depth of the Great Lakes - St. Lawrence Seaway System. The local sponsor is the Brown County Board of Harbor Commissioners. The board has stated its willingness to cost share in the feasibility study and reconfirmed its position in a letter dated 15 June 1988. Average annual benefits and costs are not available and will be determined during the design memorandum phase.

The project was authorized for planning, engineering, and design by the Water Resources Development Act of 1986 (Public Law 99-662) at a cost of $3,460,000. Actual Federal and non-Federal construction costs for this project will be determined during the design memorandum phase.

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

Fox River Channel Green Bay, WI (Continued)

Fiscal Year 1990 funds are being used to initiate a reconnaissance report to analyze the economic and environmental feasibility of incrementally deepening the channels within the harbor, identify potential disposal sites, and identify a local sponsor to cost share in the construction of the project. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance report and initiate the General Design Memorandum phase of the project. The planning, engineering and design phase is scheduled for completion in September 1993.

SUB-TOTAL - NAVIGATION	5,375,000	1,392,000	702,000	1,049,000	2,232,000

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

4b. Flood Control: The amount of $2,239,000 is requested in Fiscal Year 1991 to continue three projects and to complete three flood control preconstruction engineering and design projects.

INDIANA

Fort Wayne Metropolitan Area	2,400,000	700,000	615,000	585,000	500,000

Fort Wayne, located in Northeastern Indiana in Allen County, is in the Maumee River Basin. This basin covers an area of approximately 6,586 square miles in northwest Ohio, northeast Indiana, and southeast Michigan. There are four main tributary streams to the Maumee River: the Auglaize, Tiffin, St. Joseph and St. Marys Rivers. In the city of Fort Wayne, the St. Joseph and St. Marys Rivers join to form the Maumee River. The river then flows northeasterly to Lake Erie at Toledo, Ohio. Generally, crucial flood periods occur with heavy winter and spring rains coupled with snow-melt, when the ground was already saturated with water. The flood of record occurred in March 1913. About 5,000 acres within the city limits were covered with up to four feet of water. The Maumee River crested at 26.1 feet, eleven feet over the current flood stage of 15.0 feet. In all, 5,500 homes and businesses in the city suffered extensive damage, the municipal lighting power plant was flooded, six people died, and approximately 15,000 people were homeless. Total damage due to the flood was $4,800,000, which would be over $200,000,000 today. The flood of February 1982 ranks second to the flood of 1913 and caused over $50,000,000 in damages. The Maumee River remained above flood stage for two weeks, cresting at 25.9 feet and affected about 1,800 residential structures and 184 businesses in the primary flood areas. The flood also damaged approximately eight miles of levees in Fort Wayne. The most serious damage was to the Pemberton Dike, a 3,000 foot long levee, which protects a residential area. During the flood emergency, approximately 300,000 sandbags were placed on the side and top of the dike. It was estimated that an additional $25,000,000 in damages would have occurred had the dike failed. The recommended project is estimated to cost $16,300,000 and would provide for upgrading 35,000 feet of levees, floodwalls and steel sheet pile cribs along the Maumee, St. Marys and St. Joseph Rivers, and Spy Run Creek. Interior drainage improvements would be made as necessary along the project. Estimated average annual benefits resulting from the plan are $4,503,200 resulting in a benefit-to-cost ratio of 2.7 to 1.

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

Fort Wayne Metropolitan Area, IN (Continued)

The project is not yet authorized. The Federal cost is presently estimated at $12,100,000. Local interests would be required to provide for lands, easements, rights-of-way, and utility and facility alterations and relocations, presently estimated at $1,334,000; pay a cash contribution for flood control, presently estimated at $2,609,000; pay a 50% cash contribution for recreation, presently estimated at $257,000; and bear all costs of operation, maintenance, and replacement of flood control facilities presently estimated at $54,300 annually.

Fiscal year 1990 funds are being used to continue the General Design Memorandum. The funds requested in Fiscal Year 1991 will be used to complete the General Design Memorandum. Preconstruction Engineering and Design is scheduled to be completed in September 1992.

IOWA

West Des Moines-Des Moines	1,200,000	575,000	271,000	354,000	0

West Des Moines and Des Moines, Iowa are located in Polk County in central Iowa. The project recommended in the General Reevaluation Report will provide urban flood protection from the Raccoon River, Walnut Creek, and Jordan Creek for approximately 900 acres, including 904 residential, 227 businesses, and 11 public structures within the cities of West Des Moines and Des Moines, Iowa. The protection works includes 4 miles of levees and 900 feet of floodwall. The total project cost estimate is $18,670,000. The average annual benefits amount to $3,253,000 of which $3,188,500 is attributed to flood control and $64,500 for recreation. Letters dated 16 May 1989 and 5 June 1989 have been received from the cities of West Des Moines and Des Moines, respectively, expressing their interest and support for the project, and willingness to financially participate consistent with current cost-sharing policy. The benefit-to-cost ratio is 1.8 to 1.

The project was authorized for construction by the Water Resources Development Act of 1986. The Federal cost is presently estimated at $13,500,000. Local interests will be required to provide lands, easements, and rights-of-way, modify or relocate buildings, utilities, roads, and other facilities where necessary for construction of the project, presently estimated at $4,020,000; pay a cash contribution of $910,000 for flood control and $240,000 for recreation; and bear all costs of operation, maintenance, and replacement of flood control facilities, presently estimated at $16,200 annually.

29 JAN 1990
R2 MAR 1990

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
West Des Moines-Des Moines, IA (Continued)					

Fiscal Year 1990 funds are being utilized to complete the General Design Memorandum and initiate plans and specifications. The funds requested for Fiscal Year 1991 will be used for completion of preconstruction engineering and design in November 1991.

MICHIGAN

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
Ecorse Creek	480,000	0	59,000	205,000	216,000

Ecorse Creek Drainage Basin is located in the south central portion of Wayne County, Michigan. The basin is approximately 45.0 square miles and encompasses portions of 12 communities: Ecorse, Wyandotte, Southgate, Taylor, Romulus, Westland, Inkster, Dearborn Heights, Allen Park, Melvindale, Detroit, and Lincoln Park. Excessive flooding has occurred in recent years. On April 13, 1979, about 1.7 inches of rainfall, combined with melting snow on frozen ground, resulted in extensive flooding causing approximately $6.5 million in damage to residential areas on the east side of Dearborn Heights. On July 11, 1979, a 3 inch rainfall occurred following a previous rainfall of about 1 inch on July 9, 1979. These rainstorms resulted in extensive flooding in the cities of Allen Park, Dearborn Heights, Lincoln Park, Romulus, and Taylor. Damages were estimated at $21 million dollars in Allen Park and Taylor, and over 10,000 homes in these two communities were flooded. By letters dated June 26, 1988 and August 23, 1988, the Wayne County Division of Public Services stated its willingness to act as local sponsor for flood protection within the Ecorse Creek Basin and outlined the means by which it would finance its obligations through the use of the Michigan Drain Code and other statutes. The Final Feasibility Report and Environmental Impact Statement were completed in September 1986. The recommended project would provide for construction of a stormwater retention basin. This basin would be along the North Branch of Ecorse Creek in the western portion of Dearborn Heights. The cost of the recommended project is $7,280,000 Average annual benefits amount to $995,200 and the project has a benefit-to-cost ratio of 1.3 to 1.

The project is recommended for construction with cost sharing requirements consistent with the Water Resources Development Act of 1986 and is currently undergoing the Washington review process. The Federal cost is presently estimated at $4,560,000. Local interests will be required to provide lands, easements, rights-of-way, utility and

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
Ecorse Creek, MI (Continued)					

bridge modification and required diked disposal areas, presently estimated at $2,356,000; pay a cash contribution for flood control of $364,000; and bear all costs of operation, maintenance, and replacement of flood control facilities, presently estimated at $50,000.

Fiscal Year 1990 funds are being used to initiate the General Design Memorandum, the public coordination process, and field data collection. Fiscal Year 1991 funds will be used to continue the General Design Memorandum. Preconstruction Engineering and Design is scheduled for completion in September 1993.

MINNESOTA

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
Houston	1,400,000	659,000	267,000	284,000	190,000

The project area includes the Root River floodplain at Houston, in Houston County, in southeastern Minnesota. The Root River is a tributary of the Mississippi River. Flooding depths are generally quite substantial because of the narrow shape of the river valley. At Houston, the 100-year flood would cause about $15 million in damages and reach an average depth of 4 feet over almost the entire city. The floods are characterized by their rapid rise, short duration, and similarly rapid subsidence. The unglaciated terrain of the basin is characterized by the steep karst topography found throughout southeastern Minnesota. A recurrence of the 1952 flood of record would cause an estimated $3,120,000 in damages at Houston under current conditions. Project features include 2.4 miles of levee, 0.5 mile of road raise, interior drainage features and closure structures, and a recreation trail and related recreation features. The estimated total project cost is $6,340,000. The average annual benefits are estimated at $880,000 and the benefit-to-cost ratio is 1.5 to 1.

The project was authorized for construction by the Water Resources Development Act of 1986. The Federal cost is presently estimated at $4,560,000. Local interests will be required to provide lands, easements and rights-of-way, presently estimated at $143,000; modify or relocate buildings, utilities, roads and other facilities, where necessary in construction of the project, presently estimated at $1,199,000; pay a cash contribution of $138,000 for recreation features and a cash contribution of $300,000 for flood control features; and bear all costs of operation, maintenance and replacement of flood control facilities, presently estimated at $17,400 annually.

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
Houston, MN (Continued)					

Fiscal Year 1990 funds will be used to initiate the Design Memorandum. Fiscal Year 1991 funds will be used to complete the General Design Memorandum and initiate plans and specifications. Preconstruction engineering and design is scheduled to be completed in September 1992.

St. Paul, MN	1,700,000	875,000	428,000	397,000	0

The proposed project is on the Mississippi River directly opposite the downtown area of St. Paul. The city of St. Paul is located in Ramsey County in the upper reaches of the Mississippi River between river miles 833.1 and 850.5. In 1964, the St. Paul District completed the existing St. Paul flood control project which provides flood protection to 448 acres along the Mississippi River in St. Paul, Minnesota. The levees and floodwalls protect the area from a flood having a discharge of 168,000 cfs (167-year flood). In both 1965 and 1969 the St. Paul area experienced major floods that exceeded that previous record flood in 1952. Because of these floods, and the potential for over $240 million in damages if the project were to fail, the project level of protection was reevaluated. The plan of improvement, estimated to cost $9,550,000, would raise the existing flood barriers by 4 feet along the entire project. The higher barrier would provide protection against a flood having a discharge of 210,000 cfs (588-year flood). The proposed project is justified based on urban commercial-industrial and public flood control benefits. The average annual benefits, all flood control, are estimated at $1,025,000. The benefit-to-cost ratio is 1.12 to 1.

The project was authorized for construction by the Water Resources Development Act of 1986. The Federal cost is presently estimated at $7,160,000. Local interests will be required to provide lands, easements and rights-of-way, presently estimated at $548,000; modify or relocate buildings, utilities, roads, and other facilities, except railroad bridges, where necessary in construction of the project, presently estimated at $195,000; pay a cash contribution of $1,647,000; and bear all costs of operation, mainten-ance and replacement of flood control facilities, presently estimated at $3,700 annually.

Fiscal Year 1990 funds are being used to complete General Design Memorandum studies. Fiscal Year 1991 funds will be used for completion of plans and specifications for the first construction stage. Preconstruction engineering and design is scheduled for completion in September 1991.

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
WISCONSIN					
Portage	1,000,000	300,000	286,000	414,000	0

The city of Portage is located in south central Wisconsin about 35 miles north of Madison, Wisconsin. Through the late 1800's and early 1900's, levees were built in an attempt to prevent the frequent flooding in the Portage area. However, the existing levees do not meet Corps of Engineers or Wisconsin Department of Natural Resources design standards. During recent floods, a large amount of seepage through the levees and extensive emergency preparations have demonstrated the need for levee reconstruction. The potential exists for a disastrous flood at Portage. The recommended project, estimated to cost $7.2 million, would improve the existing levee system at Portage to provide protection from the 500-year flood. The plan includes improvements to 2.9 miles of the existing levee, 550 feet of floodwall, rehabilitation of the Portage lock gate as a flood barrier in a manner consistent with the historic value of the Portage Canal, and interior drainage facilities. The average annual benefits are $1,082,000 of which $1,050,000 are for flood damage reduction and $32,000 are for recreation. The benefit-to-cost ratio is 1.5 to 1.

The project was authorized for construction by the Water Resources Development Act of 1986. The Federal cost is presently estimated at $5,330,000. Local interests will be required to provide lands, easements, and rights-of-way, presently estimated at $604,000; modify or relocate buildings, utilities, roads and other facilities, except railroad bridges, where necessary in construction of the project, presently estimated at $44,000; pay a cash contribution of $1,086,000; pay one-half of the separable costs allocated to recreation, presently estimated at $136,000; and bear all costs of operation, maintenance, and replacement of flood control facilities, presently estimated at $10,600 annually and of recreation facilities, presently estimated at $300 annually.

Fiscal Year 1990 funds are being used to continue General Design Memorandum studies. Fiscal Year 1991 funds will be used to complete General Design Memorandum studies and complete the plans and specifications for the first construction stage of the project. Preconstruction engineering and design will be completed in September 1991.

SUB-TOTAL - FLOOD CONTROL	8,180,000	3,109,000	1,926,000	2,239,000	906,000

4c. Beach Erosion: The amount of $205,000 is requested in Fiscal Year 1991 to continue one project and to complete one beach erosion preconstruction engineering and design project.

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
ILLINOIS					
Illinois Beach State Park	870,000	0	95,000	100,000	675,000

Illinois Beach State Park includes nearly seven of the nine-mile reach of Lake Michigan shoreline between the Illinois-Wisconsin State line and Waukegan, Illinois. The park includes the largest single body of recreational land along the Illinois shoreline. It contains a large expanse of natural beach ridge and swale topography and coastal dunes that represent the last such environment remaining along the Illinois shoreline. Historically, erosion has been a significant problem in the State Park area. The nature and severity of the problem, as well as the specific areas threatened, have varied with time and changing conditions. In the North Unit of the park, erosion has been a serious problem for many years. Shoreline erosion has also become a serious problem in the northern half of the South Unit, accelerated by sustained higher-than-average lake levels in recent years. Of even greater concern, with the loss of the vast expanses of the protective coastal dune and beach system, erosion rates have increased, and can be expected to further increase, even more sharply, in the future. The recommended project, estimated to cost $10,500,000, consists of construction of 4,300 feet of rubblemound revetment in the North Unit of the park, construction of a series of seven small offshore breakwaters near the center of the park, and construction of a combination of seven offshore breakwaters and beach nourishment in the South Unit of the park. Average annual damages prevented by the project would be $1,321,500. The benefit to cost ratio is 1.2 to 1. The project also preserves scarce, environmentally valuable land.

The project is authorized for construction by the Water Resources Development Act of 1986. The Federal cost is presently estimated at $4,590,000 for shore protection. Local interests will be required to pay a cash contribution of $5,910,000 and bear all costs of operation, maintenance, and replacement of shore protection facilities, presently estimated at $129,900 annually. By letter dated 25 March 1988, the Illinois Department of Conservation has indicated that they would act as the local sponsor for the project.

The Fiscal Year 1990 funds are being used to begin work on the General Design Memorandum. The funds requested for Fiscal Year 1991 will be used to continue work on the General Design Memorandum. Preconstruction engineering and design is scheduled to be completed in August 1994.

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
INDIANA					
Indiana Shoreline Erosion	410,000	215,000	90,000	105,000	0

The project is located along 10,900 feet of the Indiana Dunes National Lakeshore between the Michigan City Harbor and Beverly Shores, Indiana. The Michigan City Harbor structures intercept littoral drift and significantly increase shoreline erosion along the National Lakeshore area. The authorized project, to mitigate the effects of the Michigan City Harbor project, consists of initial beach nourishment of 400,000 cubic yards of suitable beach material and periodic nourishment averaging an estimated 70,000 cubic yards annually at approximateky five year intervals. The project, with an estimated cost of $21,200,000, is designed to reduce the rate of erosion along the National Lakeshore to the background erosion rate that would be expected without the Michigan City Harbor structures. The benefit-to-cost ratio is 1.05 to 1.

The project is authorized for construction by the Water Resources Development Act of 1986 with a 25 percent non-Federal cost sharing requirement. However, Section 4(g) of the Water Resource Development Act of 1988 amended the 1986 Act by specifying that the Federal share of the cost of this project be determined in accordance with Title I of the Water Resources Development Act of 1986. Since there is no local sponsor and no non-Federal cost sharing requirement for the Michigan City Harbor project, application of the provisions of Section 101(c) of the 1986 Act results in no non-Federal cost sharing requirement for either the mitigation construction or subsequent operation and maintenance of the project.

Fiscal Year 1990 funds are being utilized to complete work on the General Design Memorandum and initiate work on plans and specifications. The funds requested for Fiscal Year 1991 will be used for completion of preconstruction engineering and design, including plans and specifications, in August 1991.

SUB-TOTAL - BEACH EROSION	1,280,000	215,000	185,000	205,000	675,000
TOTAL PRECONSTRUCTION ENGINEERING AND DESIGN	14,835,000	4,716,000	2,813,000	3,493,000	3,813,000
GRAND TOTAL - GENERAL INVESTIGATIONS	37,013,000	6,051,000	4,964,000	6,868,000	19,130,000

APPROPRIATION TITLE: Construction, General-Navigation (Fish and Wildlife)

PROJECT: Upper Mississippi River System Environmental Management Program (Continuing)

LOCATION: The program is authorized for those river reaches having commercial navigation channels on the Upper Mississippi River, Illinois River, Minnesota River, St. Croix River, and Kaskaskia River in the states of Illinois, Iowa, Minnesota, Missouri, and Wisconsin.

DESCRIPTION: The purpose of the Upper Mississippi River System Environmental Management Program (UMRS-EMP) is to ensure the coordinated use and development of the Upper Mississippi River System, recognizing its several purposes. Habitat rehabilitation and enhancement projects are designed to counteract the effects of backwater sedimentation. Long Term Resource Monitoring will provide for more informed management of the UMRS. Ninety five percent of authorized UMRS-EMP funding is for habitat rehabilitation and enhancement projects and Long Term Resource Monitoring. Recreation projects are an authorized program element but are not being funded due to a low Federal priority. An Economic Impacts of Recreation Study will define the impact of recreational activities on local and regional economies. Navigation Traffic Monitoring is being conducted in conjunction with other navigation studies to assure that the system is ready to meet the demands of the future.

AUTHORIZATION: FY 1985 Supplemental Appropriations Act, P.L. 99-88, and Water Resources Development Act of 1986, PL 99-662, Section 1103.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio for the entire project is not applicable because monetary benefits have not been quantified.

TOTAL BENEFIT-COST RATIO: The total benefit-cost ratio for the entire project is not applicable because monetary benefits have not been quantified. Projects are selected and designed on the basis of cost effectiveness.

INITIAL BENEFIT-COST RATIO: The initial benefit-cost ratio for the entire project is not applicable because monetary benefits have not been quantified.

BASIS OF BENEFIT-COST RATIO: The basis for the benefit-cost ratio for the entire project is not applicable because monetary benefits have not been quantified.

Division: North Central District: Rock Island Upper Mississippi River System
Environmental Management Program

29 JAN 1990

SUMMARIZED FINANCIAL DATA

				Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost			$154,514,000	
Scheduled Construction		$154,514,000		
Unscheduled Construction		0		
Estimated Non-Federal Cost			4,177,000	
Scheduled Construction		4,177,000		
Cash Contribution	$ 4,177,000			
Other Costs	0			
Unscheduled Construction		0		
Cash Contribution	0			
Other Costs	0			
Total Estimated Scheduled Construction Cost			158,691,000	
Total Estimated Unscheduled Construction Cost			0	
Total Estimated Project Cost			158,691,000	
Allocations to 30 September 1989			15,802,000	
Conference Allowance for FY 1990			14,860,000	
Allocation for FY 1990			12,848,000 1/	
Allocations through FY 1990			28,650,000	19
Allocations Requested for FY 1991			14,900,000	28
Scheduled Balance to Complete after FY 1991			110,964,000	
Unscheduled Balance to Complete after FY 1991			0	

1/ Reflects reduction of $1,433,000 assigned as savings and slippage, $153,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $426,000 reprogrammed from the project.

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STATUS: (1 January 1990)		PERCENT COMPLETE	COMPLETION SCHEDULE
General Plan		27	SEP 97
Long Term Resource Monitoring		12	SEP 97
Economic Impacts of Recreation		60	SEP 91
Traffic Monitoring		20	SEP 97
Habitat Rehabilitation and Enhancement			
Alton Pool, IL	ST. LOUIS DISTRICT	0	SEP 92
Batchtown Mgt. Area, IL	ST. LOUIS DISTRICT	0	DEC 94
Calhoun Point, IL	ST. LOUIS DISTRICT	0	SCHEDULED AFTER FY 96
Clarksville Refuge, MO	ST. LOUIS DISTRICT	76	JAN 90
Cuivre Island, MO	ST. LOUIS DISTRICT	0	DEC 93
Dike Alterations	ST. LOUIS DISTRICT	0	JUN 96
Dresser Island, MO	ST. LOUIS DISTRICT	0	JUL 91
Least Tern, MO	ST. LOUIS DISTRICT	0	FEB 96
Osborne Side Channel, IL	ST. LOUIS DISTRICT	0	SEP 94
Pharrs Island, MO	ST. LOUIS DISTRICT	0	MAR 92
Pool 25 Island, MO	ST. LOUIS DISTRICT	0	MAR 96
Pool 25 & 26, MO	ST. LOUIS DISTRICT	0	SEP 93
Sandy Chute, MO	ST. LOUIS DISTRICT	0	APR 96
Stump Lake, IL	ST. LOUIS DISTRICT	0	JUN 94
Swan Lake, IL	ST. LOUIS DISTRICT	0	JUN 93
Andalusia Refuge, IL	ROCK ISLAND DISTRICT	22	SEP 91
Banner Marsh, IL	ROCK ISLAND DISTRICT	0	SEP 96
Bay Island, MO	ROCK ISLAND DISTRICT	0	SEP 93
Bertom Lake, WI	ROCK ISLAND DISTRICT	5	SEP 92
Big Timber, IA	ROCK ISLAND DISTRICT	0	SEP 92
Brown's Lake, IA	ROCK ISLAND DISTRICT	93	SEP 91
Cottonwood Island, MO	ROCK ISLAND DISTRICT	0	SEP 96
Chautauqua Lake, IL	ROCK ISLAND DISTRICT	0	SEP 93
Gardner Div., IL	ROCK ISLAND DISTRICT	0	SEP 97
Lake Odessa, IA	ROCK ISLAND DISTRICT	0	SEP 97

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Habitat Rehabilitation and Enhancement		Percent Complete	Scheduled Completion
Monkey Chute, MO	ROCK ISLAND DISTRICT	100	DEC 88
Peoria Lake, IL	ROCK ISLAND DISTRICT	0	SEP 93
Pool 11 Islands, WI	ROCK ISLAND DISTRICT	0	SEP 97
Potter's Marsh, IL	ROCK ISLAND DISTRICT	0	SEP 95
Princeton, IA	ROCK ISLAND DISTRICT	0	SEP 94
Rice Lake, IL	ROCK ISLAND DISTRICT	0	SEP 97
Spring Lake, IL	ROCK ISLAND DISTRICT	0	SEP 96
Blackhawk Park, WI	ST. PAUL DISTRICT	0	SEP 90
Bussey Lake, IA	ST. PAUL DISTRICT	0	SEP 92
Cold Springs, WI	ST. PAUL DISTRICT	0	SEP 92
Drury Island, MN	ST. PAUL DISTRICT	0	SEP 92
Finger Lakes, MN	ST. PAUL DISTRICT	0	SEP 92
Goose Lake, MN	ST. PAUL DISTRICT	0	SEP 92
Guttenberg Fish Ponds, IA	ST. PAUL DISTRICT	89	SEP 90
Indian Slough, WI	ST. PAUL DISTRICT	0	SEP 92
Island 40, MN	ST. PAUL DISTRICT	0	NO LONGER SCHEDULED
Island 42, MN	ST. PAUL DISTRICT	100	MAY 87
Lake Onalaska, WI	ST. PAUL DISTRICT	94	SEP 90
Lansing Big Lake, IA	ST. PAUL DISTRICT	0	SEP 92
Long Lake, WI	ST. PAUL DISTRICT	0	SEP 93
Miss. R. Bank Stabilization	ST. PAUL DISTRICT	0	SEP 97
North Lake, MN	ST. PAUL DISTRICT	0	SEP 95
Peterson Lake, MN	ST. PAUL DISTRICT	0	SEP 94
Polander Lake, MN	ST. PAUL DISTRICT	0	SEP 94
Pool 4 Wildlife, MN	ST. PAUL DISTRICT	0	NO LONGER SCHEDULED
Pool 8 Islands Creation, WI	ST. PAUL DISTRICT	0	SEP 91
Pool 9 Isl Protection, WI	ST. PAUL DISTRICT	0	SEP 91
Spring Lake, MN	ST. PAUL DISTRICT	0	SEP 95
Spring Lake, WI	ST. PAUL DISTRICT	0	SEP 93
Trempealeau Refuge, WI	ST. PAUL DISTRICT	0	SEP 94
Whitewater Dike, MN	ST. PAUL DISTRICT	0	SEP 94
Other Habitat Projects		0	SEP 97
Recreation		0	UNSCHEDULED
Entire Project, Except Recreation		11	SEP 97

Division: North Central District: Rock Island Upper Mississippi River System
Environmental Management Program

29 JAN 1990

JUSTIFICATION: Implementation of the Upper Mississippi River System Environmental Management Program is essential to the continued viability of the Upper Mississippi River System and important to the long-term public acceptance and support of the navigation project. Habitat Rehabilitation and Enhancement projects will help counteract the negative effects of natural and human-induced factors on the system's backwaters and side channels. Projects are selected and designed on the basis of cost effectiveness. Long Term Resource Monitoring will determine in future years whether the habitat projects are working, indicate whether the river system is regaining its lost habitat, and evaluate sediment-related problems and solutions. An economic impacts of recreation study will enable Federal and non-Federal management decisions to better consider impacts on recreation and the consequent changes in recreation related expenditures in the local and regional economies. Traffic Monitoring will help assure that the system is ready to meet the demands of the future.

FISCAL YEAR 1991: The requested amount will be applied as follows:

PROJECT	DISTRICT	
Alton Pool, IL	ST. LOUIS DISTRICT	$ 102,000
Batchtown Management Area, IL	ST. LOUIS DISTRICT	246,000
Cuivre Island, MO	ST. LOUIS DISTRICT	107,000
Dresser Island, MO	ST. LOUIS DISTRICT	1,045,000
Osborne Side Channel, MO	ST. LOUIS DISTRICT	155,000
Pharrs Island, MO	ST. LOUIS DISTRICT	345,000
Pools 25 & 26, MO	ST. LOUIS DISTRICT	75,000
Stump Lake, IL	ST. LOUIS DISTRICT	70,000
Swan Lake, IL	ST. LOUIS DISTRICT	250,000
Andalusia Refuge, IL	ROCK ISLAND DISTRICT	504,000
Banner Marsh, IL	ROCK ISLAND DISTRICT	135,000
Bertom Lake, WI	ROCK ISLAND DISTRICT	1,640,000
Big Timber, IA	ROCK ISLAND DISTRICT	602,000
Brown's Lake, IA	ROCK ISLAND DISTRICT	57,000
Chautauqua Lake, IL	ROCK ISLAND DISTRICT	90,000
Peoria Lake, IL	ROCK ISLAND DISTRICT	383,000
Pool 11 Island, WI	ROCK ISLAND DISTRICT	94,000
Potter's Marsh, IL	ROCK ISLAND DISTRICT	100,000
Princeton, IA	ROCK ISLAND DISTRICT	97,000
Spring Lake, IL	ROCK ISLAND DISTRICT	72,000

Division: North Central

District: Rock Island

Upper Mississippi River System
Environmental Management Program

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FISCAL YEAR 1991 (Continued)

Bussey Lake, IA	ST. PAUL DISTRICT	94,000
Cold Springs, WI	ST. PAUL DISTRICT	306,000
Drury Island, MN	ST. PAUL DISTRICT	84,000
Goose Lake, MN	ST. PAUL DISTRICT	380,000
Indian Slough, WI	ST. PAUL DISTRICT	494,000
Lansing Big Lake, IA	ST. PAUL DISTRICT	268,000
Long Lake, WI	ST. PAUL DISTRICT	15,000
North Lake, MN	ST. PAUL DISTRICT	20,000
Peterson Lake, MN	ST. PAUL DISTRICT	70,000
Polander Lake, MN	ST. PAUL DISTRICT	40,000
Pool 8 Island, WI	ST. PAUL DISTRICT	821,000
Pool 9 Island, WI	ST. PAUL DISTRICT	511,000
Trempealeau Refuge, WI	ST. PAUL DISTRICT	140,000
Whitewater River, MN	ST. PAUL DISTRICT	50,000
Long Term Resource Monitoring		4,650,000
Economic Impacts of Recreation		88,000
General Plan		700,000
GRAND TOTAL		$ 14,900,000

The FY 1991 funding ($14,900,000) will be used to:

Continue the work on the General Plan, Long Term Resource Monitoring, and Economic Impacts of Recreation.

Perform Engineering and Design Work on Swan Lake, IL, Alton Pool, IL, Batchtown Management Area, IL, Potter's Marsh, IL, Princeton, IA, Spring Lake, IL, Banner Marsh, IL, Bussey Lake, IA, Cold Springs, WI, Drury Island, MN, Goose Lake, MN, Polander Lake, MN, Whitewater River, MN, Long Lake, WI, Osborne Side Channel, MO, Pool 11 Islands, WI, Trempealeau Refuge, WI, Peterson Lake, MN, North Lake, MN, Stump Lake, IL, Cuivre Island, MO, Pools 25 & 26, MO, Chautauqua Lake, IL, Indian Slough, WI, Lansing Big Lake, IA.

Perform Construction on Dresser Island, MO, Lake Pharrs Island, MO, Andalusia Refuge, IL, Bay Island, MO, Bertom Lake, WI, Big Timber, IA, Cold Springs, WI, Goose Lake, MN, Indian Slough, WI, Lansing Big Lake, IA, Pool 8 Island Creations, WI, Pool 9 Island Protection, WI, Osborne Side Channel, MO, Peoria Lake, IL, Chautauqua Lake, IL, Bussey Lake, IA, Brown's Lake, IA.

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperations	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Pay 25 percent of the costs of operations, maintenance, and replacement of all projects and pay 25 percent of the first costs allocated to fish and wildlife enhancement for the following projects:		
Alton Pool, IL	$ 231,000	To be determined
Banner Marsh, IL	1,149,000	To be determined
Blackhawk Park, WI	42,000	To be determined
Cuivre Island, MO	56,000	To be determined
Drury Island, MN	205,000	To be determined
Goose Lake, MN	208,000	To be determined
North Lake, MN	537,000	To be determined
Osborne Side Channel, IL	175,000	To be determined
Peoria Lake, IL	1,066,000	To be determined
Pool 25 Island, MO	90,000	To be determined
Rice Lake, IL	218,000	To be determined
Spring Lake, MN	200,000	To be determined
Pay 50% of the first costs allocated to recreation projects. 1/	$ 0	Not Determined
Total non-Federal Costs	$4,177,000	

1/ No recreation projects budgeted.

The non-Federal sponsors have also agreed to make all required payments concurrently with project construction or reimburse their share of construction costs over the life of each project.

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STATUS OF LOCAL COOPERATION: Additional local cooperation agreements will be executed as required for implementation of specific habitat rehabilitation and enhancement projects. The member states of the Upper Mississippi River Basin Association strongly support the project and are willing to participate in the protection and enhancement of the Upper Mississippi River system. Other Federal and state agencies have also endorsed the program.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $154,514,000 is an increase of +$356,000 from the latest estimate ($154,158,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Sundry 1/	+$356,000
Total	+$356,000

1/ The project estimate has been increased by $356,000 to reflect fixed ceilings established for this project.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: National Environmental Policy Act compliance is being accomplished prior to implementation of specific project construction.

OTHER INFORMATION: None.

APPROPRIATION TITLE: Construction General - Shoreline Protection

PROJECT: Presque Isle Peninsula, Pennsylvania (Permanent Project - Continuing)

LOCATION: Presque Isle Peninsula is located in the city of Erie, Erie County, Pennsylvania, on the south shore of Lake Erie 78 miles southwest of Buffalo, New York and about 102 miles northeast of Cleveland, Ohio

DESCRIPTION: The plan at Presque Isle State Park consists of construction of a system of 58 rubblemound breakwaters located offshore along the lakeward length of Presque Isle Peninsula. Each breakwater will be 150 feet long with a 350 foot gap between structures. Existing shore protection structures will be removed. The project also includes a post-construction nourishment program for 50 years following the initial project construction.

AUTHORIZATION: Water Resources Development Act of 1986 (Public Law 99-662)

REMAINING BENEFIT-REMAINING COST RATIO: 1.4 at 8-7/8 percent.

TOTAL BENEFIT-COST RATIO: 1.14 at 8-7/8 percent.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 8-7/8 percent (Fiscal Year 1988).

BASIS OF BENEFIT - COST RATIO: Benefits based on the Phase II General Design Memorandum approved 27 July 1988 at January 1986 price levels.

SUMMARIZED FINANCIAL DATA:

Estimated Federal Cost		$16,400,000
Scheduled Construction	$12,500,000	
Unscheduled Construction	3,900,000 1/	
Estimated Non-Federal Cost		16,400,000
Scheduled Construction	12,500,000	
Cash Contribution	12,500,000	
Other Costs	0	

1/ Reflects present worth of post-construction nourishment costs.

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	4	November 1992

PHYSICAL DATA

Initial Construction:
58 Rubblemound Offshore Breakwaters
560,000 Tons of Beach Replenishment
Removal of existing shore protection structures.
Post Construction:
55,000 Tons of Beach Nourishment (Annually)

Division: North Central

District: Buffalo

Presque Isle Peninsula
Pennsylvania (Permanent Project)

SUMMARIZED FINANCIAL DATA (Cont'd)

Estimated Non-Federal Cost	
Unscheduled Construction	3,900,000
Cash Contribution	3,900,000 1/
Other Costs	0

Total Estimated Scheduled Construction Cost	$ 25,000,000	
Total Estimated Unscheduled Construction Cost	7,800,000	
Total Estimated Project Cost	$ 32,800,000	
		Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1989	2,480,000	
Conference Allowance for FY 1990	6,500,000	
Allocations for FY 1990	5,620,000 2/	
Allocations through FY 1990	8,100,000	51
Allocation Requested for FY 1991	4,170,000	76
Scheduled Balance to Complete after FY 1991	230,000	
Unscheduled Balance to Complete after FY 1991	$ 3,900,000	

1/ Reflects present worth of post-construction nourishment costs.
2/ Reflects reduction of $627,000 assigned as savings and slippage, $67,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $186,000 reprogrammed from the project.

JUSTIFICATION: Presque Isle Peninsula, with a lakeward perimeter of about 9 miles, has been segmented into 11 bathing beaches by the Pennsylvania Park Service. Several of these beaches have a 150-year history of serious erosion. In 1956, the Federal Government, in cooperation with the Commonwealth of Pennsylvania, completed an erosion control project on Presque Isle Peninsula. Since 1956, the project proved to be inadequate and sand nourishment measures were required periodically through the 1960's and early 1970's, and annually since 1975 to protect the Federal Erie Harbor Navigation Project and state park facilities along the neck of the peninsula. These sand nourishment measures are not a complete solution to the erosion problem. The annual sand nourishment costs are rising each year making the continuation of annual nourishment an increasingly expensive means of providing protection. In addition, the availability of sufficient quantities of suitable quality sand from land sources is declining as the demand continually increases. The declining land sources may eventually

JUSTIFICATION (Continued)

lead to acquisition of higher priced sand from offshore zones. Therefore, a more effective solution for protecting the peninsula and park facilities was developed. The benefits based on the Phase II General Design Memorandum and the traditional construction period are as follows:

Benefits	Amount (1 October 1989, 8-7/8 percent)
Decreased Maintenance Cost	$ 185,400
Structural Damage Prevented	7,800
Land Loss Prevention	23,300
Decreased Dredging Costs	375,000
Decreased Nourishment Cost	2,661,200
Total	$3,252,700

FISCAL YEAR 1991 The requested amount of $4,170,000 will be applied as follows:

Beach Replenishment	$ 2,700,000
Construction of Breakwaters	1,230,000
Engineering and Design	55,000
Construction Management	185,000
Total	$ 4,170,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements $	Annual Operation, Maintenance and Replacement Costs $
Provide lands, easements, rights of way, and dredged material disposal areas.	-	-
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project.	-	-
Pay one-half of the separable costs allocated to recreation, including post-construction nourishment, and bear all costs of operation, maintenance, and replacement of breakwater features.	16,400,000	64,900
Total Non-Federal Costs	16,400,000	64,900

Requirements of Local Cooperation (Continued)

The non-Federal sponsor has agreed to make all required payments concurrently with project construction and its share of post-construction costs over the life of the project.

STATUS OF LOCAL COOPERATION: Negotiations on the final Local Cooperation Agreement (LCA) were completed on 7 April 1989 and the LCA was approved for signature on 11 April 1989. The final approved LCA was sent to the local sponsor on 13 April 1989 for execution. The sponsor returned the signed LCA on 8 June 1989. The LCA was executed by the Assistant Secretary of the Army on 22 June 1989. The construction Rights-of-way were provided by Rights-of-Entry dated 26 June 1989.

The current non-Federal cost estimate of $16,400,000, is a decrease of $300,000 from the non-Federal cost estimate of $16,700,000 noted in the Local Cooperation Agreement. In a letter dated 3 October 1988, the non-Federal sponsor indicated that it is financially capable and willing to contribute the non-Federal share of the project. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal Cost Estimate of $16,400,000 is a decrease of $300,000 from the latest estimate ($16,700,000) presented to Congress (Fiscal Year 1989). The net changes include the following items:

Decrease in Price Escalation on Construction Features	$ 81,000
Decrease in Post Contract Award and Other Estimating Adjustments	219,000
Total Decrease	$ 300,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with EPA on 13 March 1981.

The provisions of Section 404 of the Clean Water Act were met by the Public Notice issued on 9 October 1979, a Section 404(b)(1) Evaluation dated 21 December 1979, and a Section 401 Water Quality Certificate issued by the Commonwealth of Pennsylvania dated 8 August 1988. The Record of Decision which completed the National Environmental Policy Act process was signed by the Director of Civil Works on 2 November 1988.

OTHER INFORMATION: Because of problems in negotiating a Local Cooperation Agreement that was acceptable to both the sponsor and the Government, the project experienced delays that significantly impacted upon the project schedule. These delays prevented construction of any of the project features in FY 1989 and will cause completion of the project to be delayed one year until November 1992. There is a 3-year construction period due to limited availability of stone and sand beach fill. A construction contract was awarded on 23 August 1989. A Notice to Proceed was issued to the Contractor on 7 September 1989. The Contractor started construction of the breakwaters on 9 October 1989.

APPROPRIATION TITLE: Construction, General-Local Protection Project (Flood Control)

PROJECT: Loves Park, Illinois (Continuing)

LOCATION: Loves Park is located in Winnebago County in north central Illinois, just north of the city of Rockford.

DESCRIPTION: The project will provide 100-year flood protection for a highly urbanized portion of the city of Loves Park along Loves Park Creek. The project will divert excess run-off to detention areas. There, floodwaters will be stored until channel stages subside such that the floodwaters may be evacuated from the detention areas. The protective works include 17,900 lineal feet of improved channel, 3 detention lakes, and a pump station.

AUTHORIZATION: Water Resources Development Act of 1986, P.L. 99-662.

REMAINING BENEFIT-REMAINING COST RATIO: 1.7 to 1 at 8-5/8 percent.

TOTAL BENEFIT-COST RATIO: 1.7 to 1 at 8-5/8 percent.

INITIAL BENEFIT-COST RATIO: 1.4 to 1 at 8-5/8 percent.

BASIS OF BENEFIT-COST RATIO: Analysis based on General Design Memorandum dated March 1988.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost	$18,680,000
Estimated Non-Federal Cost	7,450,000
Total Estimated Project Cost	$26,130,000

STATUS: (1 Jan 90)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	0	Jul 94

PHYSICAL DATA

Relocations:	Utilities (Stage I) Utilities & Buildings (Stage II)
Channels:	17,900 feet
Pump Plant:	1

Division: North Central   District: Rock Island   Loves Park, Illinois

SUMMARIZED FINANCIAL DATA (Continued)

			Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1989	$1,209,000		
Conference Allowance for FY 1990	300,000		
Allocation for FY 1990	296,000	1/	
Allocations through FY 1990	$1,505,000		8
Allocation Requested for FY 1991	1,500,000		16
Scheduled Balance to Complete after FY 1991	15,675,000		
Unscheduled Balance to complete after FY 1991	0		

1/ Reflects reduction of $4,000 sequestered in accordance with the Gramm-Rudman-Hollings Act.

JUSTIFICATION: The Loves Park Creek floodplain is dominated by residential neighborhoods, with some concentrations of industrial and commercial development. Flooding problems are caused by intense storms falling over the highly urbanized 7.8 square mile drainage basin of Loves Park Creek. Loves Park Creek, which bisects the city, has inadequate channel capacity and hydraulically inefficient bridges which are incapable of handling the amount of run-off produced by such storms (estimated that a 2 year flood would exceed existing channel capacity). Major floods along Loves Park Creek have been of a flash flood nature and of short duration (less than 1 day). The most recent flooding occurred in April 1973, 1975, 1978, and June 1974. The maximum flood of record occurred on April 20, 1973, with damage estimated at $2,780,000. Damages under present conditions of development are estimated at $7,100,000 in 1989 price levels. The April 1978 flood caused an estimated $1,085,000 in damages ($1,900,000 in 1989 price levels), and is estimated to be a 2 to 5 year frequency flood. A 100 year flood would cause an estimated $15,300,000 in damage. Average annual damages caused by flooding along Loves Park Creek are estimated at $3,552,000 of which over 90 percent are attributable to residential damages (average value of a residential structure is estimated at $42,000). The Loves Park project will provide 100-year level of protection and will reduce Average Annual Damages (AAD) by $2,987,500 (AAD $564,500 with project). Of the total annual benefits of $3,731,200 produced by the project, less than 10 percent are future benefits. The preceding annual damage and benefit calculations are based on the economic analysis included in the General Design Memorandum for Loves Park, IL dated March 1988, approved November 1988, and revised September 1989.

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JUSTIFICATION (Continued)

ANNUAL BENEFITS	AMOUNT
Flood Control-Urban	$3,055,600
Employment	656,600
Total	$3,712,200

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate: Stage I, Channels and Pump Plant	$1,140,000
Planning, Engineering and Design	300,000
Construction Management	60,000
Total	$1,500,000

NON-FEDERAL COSTS: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, and rights-of-way	$4,660,000 1/	N/A
Modify or relocate buildings, utilities, roads bridges (except railroad bridges), and other facilities where necessary in the construction of the project	840,000	N/A

1/ Includes $60,000 in costs sunk prior to construction by the local sponsor of the Pebble Creek Dam.

Division: North Central District: Rock Island Loves Park, Illinois

NON-FEDERAL COST (Continued)

In accordance with Assistant Secretary of Army (Civil Works) decision of 17 May 1988, the Government shall apply credit for external compatible work associated with the construction of the Pebble Creek Dam	510,000	N/A
Provide services for Planning, Engineering and Design and Construction Management for relocation work	140,000	N/A
Pay 5 percent of the cost allocated to flood control in cash to bring the total non-Federal share of flood control costs to 28 percent, and bear all cost of operation, maintenance, and replacement of flood control facilities	1,300,000	$24,500
Total Non-Federal First Cost	$7,450,000	

STATUS OF LOCAL COOPERATION: The city of Loves Park, Illinois, is the local sponsor for this project. The latest letter of assurance is dated 4 January 1990. The Local Cooperation Agreement is scheduled to be executed in July 1990.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal Cost Estimate of $18,680,000 is an increase of $3,380,000 from the latest estimate ($15,300,000) presented to Congress (FY 1989). This change includes the following:

ITEM	INCREMENTAL CHANGE
Price Escalation and Application of an Estimated Inflation Allowance through the Construction Period	$+2,295,000
Post Contract Award and Other Estimating Adjustments	+1,085,000
Total	$+3,380,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) was approved by the Council on Environmental Quality on 14 March 1980. In 1985, an Environmental Assessment (EA) was coordinated to address changes to the project incorporated in the General Reevaluation Report which resulted in a Finding of No Significant Impact which was signed by the District Commander in December 1986. An EA addressing further changes identified in the General Design Memorandum has been prepared and is scheduled for Public Review in the second quarter of FY 1990. It is expected the review will result in a Finding of No Significant Impact, which is scheduled to be signed by the District Commander in March 1990.

With regard to Section 404 requirements, the project is covered under a nation wide permit (#26) however, Sec 401, State Certification is required from the State of Illinois and is scheduled to be obtained in conjunction with the environmental assessment schedule.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1985 and funds to initiate construction were appropriated in FY 1990.

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: North Branch Chicago River, Illinois

LOCATION: The North Branch Chicago River basin is located north of the city of Chicago in suburban Cook and Lake Counties.

DESCRIPTION: Project consists of two excavated floodwater storage reservoirs on the West Fork of the North Branch Chicago River (Reservoir No. 27 and Reservoir No. 29A) and one excavated reservoir on the Middle Fork (Reservoir No. 15). The Water Resources Development Act of 1986 also includes authorization to reimburse non-Federal interests for 50 percent of the costs of planning and construction for three existing reservoirs on the West Fork, known as Techny Reservoirs, and the existing Mid Fork Reservoir and pumping station on the Middle Fork.

AUTHORIZATION: Water Resources Development Act of 1986, PL 99-662.

REMAINING BENEFIT-REMAINING COST RATIO: 2.4 to 1 at 8-7/8 percent.

TOTAL BENEFIT-COST RATIO: 1.6 to 1 at 8-7/8 percent.

INITIAL BENEFIT-COST RATIO: 1.7 to 1 at 8-7/8 percent (FY 1988).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in April 1987 at 1986 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		18,800,000
Estimated Non-Federal Cost		9,700,000
Cash Contributions	1,907,000	
Other Costs	7,793,000	
Total Estimated Project Cost		28,500,000

STATUS: (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Reservoir No. 15	0	Sep 1991
Reservoir No. 27	98	Mar 1990
Reservoir No. 29A	0	Sep 1991
Techny Reservoir	100	1979
Mid Fork Reservoir	100	1975
Entire Project	62	Sep 1991

DIVISION: North Central DISTRICT: Chicago North Branch Chicago River, Illinois

19 JAN 1990

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1989	$ 5,971,000	
Conference Allowance for FY 1990	4,550,000	
Allocation for FY 1990	8,396,000 1/	
Allocations through FY 1990	14,367,000	76
Allocation Requested for FY 1991	4,433,000	100
Scheduled Balance to Complete after FY 1991	0	
Unscheduled Balance to Complete after FY 1991	0	

PHYSICAL DATA

Reservoir No. 15	
Reservoir floodway storage capacity	500 acre-feet
Diversion structure and pumping plant	1 plant
Reservoir No. 27	
Reservoir floodway storage capacity	525 acre-feet
Diversion structure and pumping plant	1 plant
Reservoir No. 29A	
Reservoir floodway storage capacity	575 acre-feet
Diversion structure and pumping plant	1 plant

1/Reflects reduction of $439,000 assigned as savings and slippage, $47,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $4,332,000 reprogrammed to the project.

JUSTIFICATION: Over-bank flooding is a serious problem in the North Branch Chicago River watershed. All of the damages are attributable to urban property. Damage to residential property is the primary flood damage category. The value of residential property presently subject to flood damage is $670 million. In addition, over $5 million dollars worth of commercial and industrial property is subject to flood damage.

The overall average annual benefits of the project are $3,202,400. Approximately 79 percent of the benefits are attributable to existing development. Future development benefits reflect the reduction in landfill costs for buildings constructed in the future on land removed from the regulatory flood plain. For this project, there will be a 100-year level of protection immediately downstream of each reservoir, with the level of protection decreasing in reaches of the stream further downstream.

The maximum flood of record in the basin occurred in July 1982 and resulted in $7.3 million of damages. If the same flood occurred this year, the damages would amount to $9.7 million. The July 1982 flood was estimated to be a one percent chance (100-year) flood in the headwaters of the West Fork and between a two percent chance (50-year) and a ten percent chance (10-year) flood in other parts of the basin. The duration of the record flood was between 24 and 36 hours.

29 JAN 1990

FISCAL YEAR 1991: The requested amount will be applied as follows:

Complete construction of Reservoir 15	$ 2,276,000
Complete construction of Reservoir 29A	1,737,000
Planning, Engineering and Design	49,000
Construction Management	371,000
Total	$ 4,433,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payment During Construction	Annual Operation, Maintenance & Repair
Provide lands, easements, and rights-of-way	$3,395,000	-
Relocate of utilities	48,000	-
Pay 50 percent of the Techny and Mid Fork Reservoirs planning and construction	4,350,000	-
Make cash contribution to bring the total non-Federal share of flood control to 25 percent and bear all costs of operation, maintenance and replacement of flood control facilities	1,856,000	$96,000
Pay 25 percent of the first cost allocated to fish and wildlife enhancement	51,000	-
Total Non-Federal First Costs	$9,700,000	$96,000

STATUS OF LOCAL COOPERATION: By letter dated 2 August 1983, the Director of the Illinois Division of Water Resources indicated that the State of Illinois will provide the lands required for the project. The State of Illinois is also furnishing the required local contribution. The Director also stated that the Lake County Forest Preserve District and the Village of Deerfield will operate and maintain the reservoirs. The local cooperation agreement for Reservoir No. 27 was executed on 27 April 1988. The local cooperation agreements for Reservoir No. 29A and Reservoir No. 15 are scheduled to be executed in March 1990 and July 1990, respectively. The Memorandum of Agreement for repayment of 50 percent of the costs of planning and construction the Techny and Mid Fork Reservoirs and pumping station is scheduled to be executed in May 1990.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (Corps of Engineers) cost estimate of $18,800,000 is an increase of $400,000 from the latest estimate ($18,400,000 - October 1988) presented to Congress. This change includes the following items:

	Amount
Price Escalation on Construction Features	$ -25,000
Design Changes	89,000
Post Contract Award and Other Estimating Adjustments	336,000
Total	$ 400,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with the Environmental Protection Agency on 11 May 1984. A Finding of No Significant Impact for changes at Reservoir 29A was signed by the District Engineer on 1 July 1987.

OTHER INFORMATION: Funds to initiate construction were appropriated in Fiscal Year 1988. The first construction contract for Reservoir No. 27 was awarded on 15 July 1988. The construction contracts for Reservoirs Nos. 29A and 15 are scheduled for award in April 1990 and July 1990, respectively.

2085

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Little Calumet River, Indiana - Continuing Construction

LOCATION: The Little Calumet River Basin, Northwest Indiana, Lake County.

DESCRIPTION: The project consists of replacing 9.5 miles of existing spoil bank levees with 12.2 miles of new levees, floodwalls, closure and appurtenant structures between the Illinois-Indiana State line and Cline Avenue in Gary, Indiana; constructing 9.7 miles of set-back levees and appurtenant drainage structures; installing a diversion structure at Hart Ditch; permanent evacuation of 29 structures in the Black Oak area of Gary, Indiana; flood proofing 38 residential structures in Gary; modifying 7 miles of channel with 3 accompanying bridge culvert modifications; modifying 1 highway bridge; constructing 16.8 miles of hiking trails and accompanying recreation support facilities, and preservation of 788 acres of wildlife habitat.

AUTHORIZATION: Water Resources Development Act of 1986, PL 99-662.

REMAINING BENEFIT-REMAINING COST RATIO: 2.2 to 1 at 8-5/8 percent.

TOTAL BENEFIT-COST RATIO: 2.1 to 1 at 8-5/8 percent.

INITIAL BENEFIT-COST RATIO: 2.1 to 1 at 8-5/8 percent (FY 1990).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation, approved in August 1988 at 1987 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		51,400,000
Estimated Non-Federal Cost		23,800,000
Cash Contributions	5,138,000	
Other Costs	18,662,000	
Total Estimated Project Cost		75,200,000

STATUS: (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	0	SEP 96

PHYSICAL DATA

Levees and Floodways	21.9 miles
Pumping Plant Modifications	11
Structures Removed	29
Structures Floodproofed	38
Channel Modification	7 miles
Hiking Trails	16.8 miles

DIVISION: North Central **DISTRICT:** Chicago Little Calumet River, Indiana

29 JAN 1990

2086

SUMMARIZED FINANCIAL DATA (Continued)

			ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1989	$ 1,342,000		
Conference Allowance for FY 1990	2,400,000		
Allocation for FY 1990	2,366,000	1/	
Allocations through FY 1990	3,708,000		7
Allocation Requested for FY 1991	3,390,000		14
Scheduled Balance to Complete after FY 1991	44,302,000		
Unscheduled Balance to Complete after FY 1991	0		

1/ Reflects reduction of $34,000 sequestered in accordance with the Gramm-Rudman-Hollings Act.

JUSTIFICATION: Overbank flood damages occur to 8,600 structures, primarily residential, along the Little Calumet River in Indiana within the communities of Hammond, Munster, Griffith and Gary. The total value of these structures is in excess of $775 million. Flood damages also occur to commercial and public buildings, golf courses and the transportation network. The major highway transportation link between the Chicago Metropolitan area and the eastern United States, Interstate 80/94, is susceptible to closure with a 40 to 50-year flood event. Average annual damages (October 1989 price levels) prevented are estimated at $11,809,000. The level of protection associated with the project is estimated to be in excess of the 100-year frequency. The June 1981 flood event, the maximum flood of record, is estimated to be a 40-year recurrence interval near the State line, diminishing to about a 10-year event in the Gary, Indiana, area. The State of Indiana continues to rate the flood damage potential along the Little Calumet River as the most severe in the state.

The project avoids the short and long term adverse impacts associated with the destruction or modification of wetlands by designating the existing wetland areas in the Gary reach overbank for flood storage, a vital requirement of the hydraulic operation and design of the project, and hence required project lands. Environmental attributes are being mitigated for as well as enhanced along the river corridor.

JUSTIFICATION (Continued)

Annual Benefits	Amount
Flood Damage Prevention	$11,809,000
Recreation	262,000
Land Enhancement	1,547,000
NED Employment Benefits	239,000
Total	13,857,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate Construction Stage II	1,174,000
Complete Construction Stage I	780,000
Engineering and Design	1,281,000
Construction Management	155,000
Total	3,390,000

NON-FEDERAL COST: In accordance with the cost sharing and financing requirements contained in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payment During Construction & Reimbursements	Annual Operation, Maintenance & Replacement Costs
Provide lands, easements, rights of way, borrow material and spoil material disposal areas.	$ 7,217,000	
Modify or relocate buildings, utilities, roads, bridges, and other facilities, where necessary in the construction of the project.	11,445,000	
Pay one-half the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities;	578,000	

2088

Requirements of Local Cooperation (Continued)	Payment During Construction & Reimbursements	Annual Operation, Maintenance & Replacement Costs
Pay 5 percent of of the costs allocated to flood control (other than non-structural measures) to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, and replacement of flood control facilities.	3,481,000	$ 156,000
Pay 25 percent of the first cost allocated to non-structural flood control measures.	675,000	
Pay 25 percent of the first costs allocated to fish and wildlife enhancement, and pay 25 percent of the costs of operation, maintenance, and replacement, of the fish and wildlife facilities.	404,000	
Total Non-Federal First Costs	23,800,000	$ 156,000

The non-Federal sponsor has agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: By letter dated 22 June 1981, the Little Calumet River Basin Development Commission forwarded a resolution passed by the Commission affirming its understanding of the general items of local cooperation and tentative willingness to act as project sponsor. By letter dated 2 May 1986, the Commission expressed its intention to meet all of the non-Federal project sponsor requirements. The Commission is aware of the PL 99-662 cost-sharing requirements. A draft Local Cooperation Agreement has been coordinated with the Commission and agreement has been reached on all significant issues. The Local Cooperation Agreement is scheduled to be executed in April 1990.

The State of Indiana and the Little Calumet River Basin Development Commission have invested $5.5 million dollars to acquire most of the private, undeveloped flood plain in the east reach.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (Corps of Engineers) cost estimate of $51,400,000 is a decrease of $10,300,000 from the latest estimate ($61,700,000 - October 1988) presented to Congress. This change includes the following items:

	Amount
Price Escalation	$-4,234,000
Post Contract Award and Other Estimating Adjustments	-3,002,000
Sundry	-3,064,000
Total	$-10,300,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with the Environmental Protection Agency on 3 February 1984. An environmental assessment has been prepared to address the borrow sites and was circulated for public review and comment in January 1990.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1984. Initial construction funds were appropriated in FY 1990. The first construction contract for Stage I, non-structural measures, is scheduled for award in July 1990. Fish and wildlife mitigation costs for this project are estimated at $387,000.

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Bassett Creek, Minnesota (Continuing)

LOCATION: The project is located in Hennepin County and Minneapolis, Minnesota, on Bassett Creek, a tributary of the Mississippi River.

DESCRIPTION: The project consists of non-structural and structural flood control measures. Nonstructural measures include continuation of existing floodplain regulations, flood insurance and flood forecasting, and flood warning. Principal structural measures consist of six small control structures in the upper watershed to temporarily impound floodwaters and a new tunnel (11,900 linear feet) (part of which is being constructed on a cooperative basis with the Minnesota Department of Transportation (MN/DOT) in a highly urbanized area of Minneapolis to replace the existing tunnel outletting Bassett Creek to the Mississippi River). Also included in the plan are a limited reach of channel widening (5,058 linear feet), two bridge removals, nine culvert replacements, five earth embankments for structures, a weir structure, a flood storage area excavation (157,000 cubic yards), a railroad bridge replacement, and a railroad bridge modification.

AUTHORIZATION: 1976 Water Resources Development Act, and FY 1985 Supplemental Appropriation Act (Public Law 99-88).

REMAINING BENEFIT - REMAINING COST RATIO: 3.0 to 1 at 8 1/8 percent.

TOTAL BENEFIT-COST RATIO: 1.10 to 1 at 8 1/8 percent.

INITIAL BENEFIT-COST RATIO: 1.10 to 1 at 8 1/8 percent (FY 1985).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation (Phase 2 General Design Memorandum) approved in May 1983 at October 1982 price levels.

DIVISION: North Central DISTRICT: St. Paul Bassett Creek, Minnesota

2 0 JAN 1986

SUMMARIZED FINANCIAL DATA

			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$29,000,000	
Estimated Non-Federal Cost		9,670,000	
Cash Contribution	$3,940,000		
Other	5,730,000		
Total Estimated Project Cost		$38,670,000	
Allocations to 30 September 1989		$11,834,000 1/	
Conference Allowance for FY 1990		8,700,000	
Allocation for FY 1990		6,548,000 2/	
Allocations through FY 1990		18,382,000	63
Allocation Requested for FY 1991		8,505,000	93
Scheduled Balance to Complete After FY 1991		2,113,000	
Unscheduled Balance to Complete After FY 1991		0	

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	34	Sep 1992

1/ Includes $885,000 appropriated under General Investigation.

2/ Reflects $839,000 reduction assigned as savings and slippage, $89,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $1,224,000 reprogrammed from the project.

PHYSICAL DATA

Relocations:
- Railroad Bridge Replacement
- Railroad Bridge Modification

Flood Control Structures:	
Structures	6
Culvert replacements	9
Earth embankments for structures	5
Culvert removal	1

Channels:	
Double Box Culverts	5,700 linear feet
13-foot diameter tunnel	1,400 linear feet
12-foot diameter tunnel	4,800 linear feet
Channel improvement	5,085 linear feet
Bridge removals	2
Storage area excavation	157,000 cubic yards

DIVISION: North Central   DISTRICT: St. Paul   Bassett Creek, Minnesota

29 JAN 1990

JUSTIFICATION: Residential areas in the upper watershed and industrial and commercial lands in the lower watershed together with several major highways and railroads are subject to frequent flooding. A large commercial and industrial area in Minneapolis is especially susceptible to flood damage because it is located immediately upstream of the 1.5 mile tunnel which is the outlet for the entire Bassett Creek watershed. A blockage of this deteriorating tunnel during a 100-year flood event would cause flood damages exceeding $28,152,000 in the proximity of the tunnel entrance. Severe flood damages also occur in the communities of Golden Valley, New Hope, and Crystal. Recent severe flooding in the Bassett Creek watershed occurred in 1974, 1975, 1978 and 1987. Summer rainstorms and spring snowmelt often increased by rainfall are the major causes of flood damage in the watershed. A related problem, caused by the rain and flooding, is sanitary sewer backup in many homes. A severe flood in June 1942 was significant because of the damage incurred by the commercial and industrial establishments in Minneapolis. If a flood of this magnitude were to occur at this time, damages of approximately $3,487,000 would result in Minneapolis and damages of approximately $9,297,000 would be sustained throughout the remainder of the watershed. Flood damages presently average approximately $2,245,000 annually without flood protection. Appropriate measures would provide flood protection for some 222 residences and 19 industries located in the floodplain, and commercial and industrial development in Minneapolis. The average annual benefits are as follows:

Annual Benefits	Amount (1 October 1989)
Flood Control	$1,950,000
Advance Replacement	1,952,000
Total	$3,902,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Complete construction of Stage 2B features	$ 117,000
Continue construction of Tunnel Reach (Stage 4), Channels	6,677,000
Initiate construction of Upstream Stage 2C, Channels, Flood Control Structures	1,255,000
Planning, Engineering and Design	150,000
Construction Management	306,000
Total	$8,505,000

DIVISION: North Central DISTRICT: St. Paul Bassett Creek, Minnesota

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$3,722,000	
Modify or relocate buildings, utilities, roads, bridges, (except railroad bridges), and other facilities, where necessary in the construction of the project.	2,008,000	
Pay 10 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, and replacement of flood control facilities.	3,940,000	$20,600
Total Non-Federal First Cost	$9,670,000	

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: On 27 June 1986, the city of Minneapolis and Department of the Army signed a Local Cooperation Agreement (LCA). The current non-Federal cost estimate of $9,670,000, which includes a cash contribution of $3,940,000, is an increase of $970,000 from the non-Federal cost estimate of $8,700,000 noted in the Local Cooperation Agreement. The LCA included a cash contribution of $4,289,000. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $29,000,000 is an increase of $2,100,000 from the latest estimate ($26,900,000) presented to Congress (FY 1990). This change includes the following items:

Item	Incremental Change
Price Escalation on Construction Features	$ -404,000 1/
Design Changes	+994,000
Post Contract Award and Other Estimating Adjustments	+820,000
Sundry	+690,000
Total	$+2,100,000

1/ Includes adjustments in the estimated inflation allowance through the construction period.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (FEIS) was filed with the Environmental Protection Agency on 10 July 1978. An environmental assessment was prepared in 1982 to accompany the general design memorandum. The finding of no significant impact was signed on 20 January 1983. To accompany feature design memorandum no. 4, a final supplement to the FEIS was submitted to the Environmental Protection Agency in November 1989. The supplement addresses disposition of hazardous wastes (lead) found in the tunnel inlet area. The plan proposes to store excavated material from channel excavation at the site and provision of an impervious cover over the material. The provisions of Section 404 of the Clean Water Act have been met for the completed general design memorandum by a Section 404(b)(1) Evaluation completed on 4 January 1983, a Public Notice issued on 17 December 1982, and a Certification Waiver from the State of Minnesota issued on 4 January 1983.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1979. The plan of improvement for flood control includes a conduit and tunnel through a highly urbanized area of Minneapolis constructed in cooperation with the Minnesota Department of Transportation under its proposed interstate highway system. Under the agreement, the city paid to the State its share of costs for the tunnel and associated facilities, including the allocated Federal share for the Bassett Creek project. Project authorization includes a provision that local interests may be reimbursed for any costs they may incur in the interest of flood control as part of the advance construction of the Federal share of the cooperative conduit and tunnel facilities. The Minnesota Department of Transportation completed construction of 4,800 feet of tunnel for which the Federal share was $3,642,888. A Section 215 agreement between the city of Golden Valley, the city of Minneapolis, and the United States Government concerning potential Federal reimbursement for certain local expenditures on this project was executed on 30 August 1979. Local construction began in November 1981 and was completed in October 1983 for which the Federal share was $380,400.

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Chaska, Minnesota (Continuing)

LOCATION: Chaska is located in Carver County in south-central Minnesota on the Minnesota River, a tributary of the Mississippi River.

DESCRIPTION: The plan for flood control at Chaska, Minnesota, consists of a levee and interior drainage works along the Minnesota River, flood diversion channels on Chaska Creek and East Creek, and appropriate floodplain regulation measures.

AUTHORIZATION: 1976 Water Resources Development Act

REMAINING BENEFIT-REMAINING COST RATIO: 1.5 to 1 at 8 7/8 percent.

TOTAL BENEFIT-COST RATIO: 1.05 to 1 at 8 7/8 percent.

INITIAL BENEFIT-COST RATIO: 1.05 to 1 at 8 7/8 percent (FY 1988).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in February 1985 at October 1984 price levels.

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$24,400,000	
Estimated Non-Federal Cost		8,190,000	
Cash Contribution	$3,023,000		
Other	5,167,000		
Total Estimated Project Cost		$32,590,000	
Allocations to 30 September 1989		2,961,000 1/	
Conference Allowance for FY 1990		4,300,000	
Allocation for FY 1990		4,133,000 2/	
Allocations through FY 1990		7,094,000	29
Allocation Requested for FY 1991		4,400,000	47
Scheduled Balance to Complete after FY 1991		12,906,000	
Unscheduled Balance to Complete after FY 1991		0	

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	2	Aug 1994

1/ Includes $1,159,000 appropriated under General Investigation.

2/ Reflects reduction of $415,000 assigned as savings and slippage, $44,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $292,000 reprogrammed to the project.

DIVISION: North Central **DISTRICT:** St. Paul Chaska, Minnesota

PHYSICAL DATA

Fish and Wildlife Facilities:
Chaska Lake moist soil unit with Chaska Lake control structure

Channels:	
Diversion Channel	8,800 feet
Channel Improvement	1,500 feet

Levees:	
New Levee	7,800 feet
Levee Improvement	5,800 feet

Pumping Plant:	
Pumping Station	1

Recreation Facilities:	
Recreation Trails	2.9 miles

JUSTIFICATION: The floodplain at Chaska consists of approximately 390 acres behind the existing Minnesota River levee and along Chaska and East Creeks. Over 540 residences, 47 businesses and industries, three public buildings, the city water supply and sanitary system, streets, roads, and public utilities are directly affected by flooding of the two creeks and the Minnesota River. Potential floods pose severe threats to the lives and security of the residents of Chaska. Run-off from snowmelt has caused two major floods in the past 24 years. In the spring of 1965, the flood of record caused damages estimated at $1,957,000. In 1969, another severe spring flood caused damages estimated at $1,088,000. Under current conditions and prices and without a successful flood fight, floods similar to those in 1965 and 1969 could cause damages estimated at $10,646,000 and $4,521,000, respectively. The proposed project would provide flood protection against a flood having an occurrence interval of about once in 100 years. This project would address flood control and recreational needs of this suburban metropolitan community. The average annual benefits are as follows:

Annual Benefits	Amount (1 October 1989)
Flood Control	$2,961,000
Recreation	40,000
Total	$3,001,000

DIVISION: North Central DISTRICT: St. Paul Chaska, Minnesota

FISCAL YEAR 1991: The requested amount will be applied as follows:

Complete Construction of Stage 2 Improvements	$3,267,000
Planning, Engineering and Design	905,000
Construction Management	228,000
Total	$4,400,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor (City of Chaska) must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, and rights-of-way, and dredged material disposal areas.	$2,586,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	2,581,000	
Pay one-half of the separable costs allocated to recreation, and bear all costs of operation, maintenance, and replacement of recreation facilities.	95,000	$ 3,500
Pay 9 percent of the costs allocated to flood control to bring the total non-Federal share to 25 percent, and bear all costs of operation, maintenance, and replacement of flood control facilities.	2,928,000	45,000
Total Non-Federal Costs	$8,190,000	

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

2098

STATUS OF LOCAL COOPERATION: The Local Cooperation Agreement was executed on 12 September 1988. The current non-Federal cost estimate of $8,190,000, which includes a cash contribution of $3,023,000, is an increase of $860,000 from the non-Federal cost estimate of $7,330,000 noted in the Local Cooperation Agreement, which included a cash contribution of $2,497,000. The non-Federal sponsor has sold $3,915,000 worth of bonds, has applied for a grant from the Small Cities Development Program and expects financial assistance from the Minnesota Department of Natural Resources. The non-Federal sponsor is financially capable and willing to contribute the increased non-Federal share. To date, the city has deposited $1,229,000 in the escrow account.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $24,400,000 is an increase of $1,200,000 over the latest estimate ($23,200,000) presented to Congress (FY 1990). This change includes the following items:

Item	Incremental Change
Price Escalation on Construction Features	$ -627,000
Design Changes	+32,000
Post Contract Award and Other Estimating Adjustments	+2,014,000
Sundry	-219,000
Total	$+1,200,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Impact Statement (EIS) was filed with the Council on Environmental Quality in October 1976. An EIS Supplement to address provisions of the Clean Water Act has been prepared to accompany the Limited Reevaluation Report. The draft EIS Supplement was filed with the Environmental Protection Agency (EPA) on 21 May 1982. The Final Supplement was filed on 8 October 1982. A draft EIS Supplement No. 2, to address the change in location of the East Creek Diversion has been prepared to accompany the General Design Memorandum and was filed with EPA in September 1984. The Final EIS for Supplement No. 2 was filed in May 1985.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1979 and funds to initiate construction were appropriated in FY 1988.

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Rochester, Minnesota (Continuing)

LOCATION: Rochester is located in Olmsted County in southeastern Minnesota on the South Fork of the Zumbro River, a tributary of the Mississippi River.

DESCRIPTION: The proposed project is located in Olmsted County in southeastern Minnesota approximately 70 miles south of Minneapolis-St. Paul. The plan of improvement consists of stream channel modifications and levees functioning in combination with a system of seven headwaters reservoirs that are being constructed by the Soil Conservation Service. The combined system will provide protection from the 200-year flood and will provide additional recreation resources for the area. Principal features include 6.6 miles of riprap-lined channels, 0.9 mile of architecturally-treated concrete channels, 0.5 mile of dredged channel, six drop structures, 2.4 miles of levee, and hiking and biking trails.

AUTHORIZATION: Water Resources Development Act of 1986 (Public Law 99-662).

REMAINING BENEFIT-REMAINING COST RATIO: 1.6 to 1 at 8 5/8 percent.

TOTAL BENEFIT-COST RATIO: 1.11 to 1 at 8 5/8 percent.

INITIAL BENEFIT-COST RATIO: 1.5 to 1 at 8 5/8 percent (FY 1987).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in February 1983 at October 1982 price levels.

DIVISION: North Central **DISTRICT:** St. Paul Rochester, Minnesota

SUMMARIZED FINANCIAL DATA

			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$64,200,000	
Estimated Non-Federal Cost		22,300,000	
Cash Contribution	$ 7,975,000		
Other	14,325,000		
Total Estimated Project Cost		$86,500,000	
Allocations to 30 September 1989		$12,800,000 1/	
Conference Allowance for FY 1990		5,800,000	
Allocation for FY 1990		6,411,000 2/	
Allocations through FY 1990		19,211,000	30
Allocation Requested for FY 1991		8,500,000	43
Scheduled Balance to Complete after FY 1991		36,489,000	

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	16	Dec 1994

1/ Includes $1,595,000 appropriated under General Investigations.

2/ Reflects reduction of $559,000 assigned as savings and slippage, $60,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $1,230,000 reprogrammed to the project.

PHYSICAL DATA

Relocations:	
Road and Highway Bridge Modifications	20
Road and Highway Bridge Replacements	2
Railroad Bridge Modification	1
Railroad Bridge Replacement	2
Utility Crossings	12

Channels:	
Riprap lined	6.6 miles
Concrete lined	0.9 mile
Dredged	0.5 mile
Drop Structures	6

Levees:	
Primary Levees	1.9 miles
Tieback Levees	0.5 mile

Recreation and Fish and Wildlife Facilities:	
Foot and Bicycle Trails	6 miles
Footbridge Replacement	10
New Footbridges	2
Wildlife Mitigation Area	142 acres

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JUSTIFICATION: A potential exists for catastrophic flood damages in Rochester where more than one-third of the city lies within the floodplain formed by the South Fork Zumbro River and Cascade Creek, and Bear and Silver Creeks. Rochester, with a population in 1980 of 57,890, is a city of commerce, industry, medical facilities, and cultural institutions in the midst of an agricultural and dairying region. Major floods have occurred five times during the past 28 years. In the spring of 1962, the water in the South Fork Zumbro River and the tributaries rose rapidly. The ice cover broke up and created ice jams which caused water to rise higher. The resulting flood

JUSTIFICATION (Continued)

damages were estimated at $1.6 million. Under current conditions and prices a recurrence of the 1962 flood could cause damages estimated at $28.4 million. In 1965, another severe flood occurred causing damages estimated at $8.2 million. A recurrence of the 1965 flood could cause damages of approximately $41.4 million under current conditions at 1 October 1989 price levels. The flood of record, which occurred over a portion of the project area in July 1978, caused a loss of 5 lives and estimated damages of $58.8 million. Potential damages from a flood having a frequency of occurrence of once in 200 years (design flood) could be more than $123.4 million under current conditions. Over 2,000 residences, 200 businesses, 21 industries, and 10 public buildings at Rochester would be subject to flood damage posing a severe threat to the life and security of the residents. The average annual benefits are as follows:

Annual Benefits	Amount (1 October 1989)
Flood Control	$8,212,000
Recreation	177,000
Total	$8,389,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate Construction of Stage 2A Improvements	$2,244,000
Continue Construction of Stage 1B3 Improvements	3,599,000
Complete Construction of Stage 1B1 Improvements	1,157,000
Planning, Engineering and Design	1,100,000
Construction Management	400,000
Total	$8,500,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsors must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance and Replacement Costs
Provide lands, easements, and rights-of-way, and dredged material disposal areas.	$10,028,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	4,297,000	
Pay one-half of the separable costs allocated to recreation, and bear all costs of operation, maintenance, and replacement of recreation facilities.	1,290,000	$28,400
Pay 8 percent of the costs allocated to flood control to bring the total non-Federal share to 25 percent, and bear all costs of operation, maintenance, and replacement of flood control facilities.	6,685,000	146,900
Total Non-Federal Costs	$22,300,000	

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The local sponsor, the city of Rochester, signed the Local Cooperation Agreement (LCA) on 27 August 1987. The current non-Federal cost estimate of $22,300,000, which includes a cash contribution of $7,975,000, is an increase of $3,900,000 over the non-Federal cost estimate of $18,400,000 noted in the LCA, which included a cash contribution of $8,740,000. Our analysis of the city of Rochester's financial capability to participate in the project affirms that the city has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $64,200,000 is a decrease of $2,300,000 from the latest estimate ($66,500,000) presented to Congress (FY 1990). This change includes the following items:

29 JAN 1990

COMPARISON OF FEDERAL COST ESTIMATES (Continued)

Item	Amount
Price Escalation on Construction Features	$-3,282,000
Design Changes	+11,000
Post Contract Award and Other Estimating Adjustments	+1,210,000
Sundry	-239,000
Total	$-2,300,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Impact Statement was filed with the Council on Environmental Quality on 19 September 1973. An updated draft statement was filed with the Environmental Protection Agency on 24 July 1978 and the updated final statement was submitted to the Environmental Protection Agency on 9 May 1979.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1975 and funds to initiate construction were appropriated in FY 1987. The Soil Conservation Service (SCS) proposed a system of upstream reservoirs in their Watershed Plan dated April 1978. The SCS plan includes the installation of six single purpose flood prevention structures; three on Cascade Creek, one on Silver Creek and two on Willow Creek and one multiple-purpose flood prevention-recreation structure on Bear Creek. The SCS plan also includes recreation facilities and accelerated land treatment measures. The SCS structures would control 43.6 square miles of drainage area and provide storage of 8,545 acre-feet for floodwater, 3,430 acre-feet for sediment, and 795 acre-feet for recreation. The combined effect of the SCS and Corps project will provide greater than 200-year protection for the city. Without the SCS reservoirs, some areas of Rochester would have less than 100-year protection. Construction of the two reservoirs on Willow Creek is complete. Detailed design is underway on the Bear Creek reservoir. Construction will begin on the Silver Creek reservoir in FY 1990.

The total project cost estimate is expected to increase significantly, and will probably exceed the limits of Section 902 of the Water Resource Development Act of 1986 in FY 1994.

APPROPRIATION TITLE: Construction, General-Local Protection Project (Flood Control)

PROJECT: Hannibal, Missouri (Continuing)

LOCATION: The Hannibal, Missouri, project is located on the right bank of the Mississippi River at river mile 309 in Marion County, Missouri.

DESCRIPTION: The project provides 500-year level of protection for Hannibal by construction of levees and floodwalls along Front and Collier Streets. The proposed project is approximately 0.7 of a mile long, with an average height of 12.5 feet. Concrete floodwalls would be used in the confined areas. Four streets require closure structures. Provisions to allow for interior drainage include a new interceptor sewer, six gatewells, and a 1.0 acre ponding area with pumping station. The area to be protected includes 19 blocks of the City's downtown area, which includes the historic Mark Twain District.

AUTHORIZATION: Flood Control Act of 1962.

REMAINING BENEFIT-REMAINING COST RATIO: 1.5 to 1 at 8-5/8 percent.

TOTAL BENEFIT-COST RATIO: 1.16 to 1 at 8-5/8 percent.

INITIAL BENEFIT-COST RATIO: 1.2 to 1 at 8-7/8 percent (FY 1988).

BASIS OF BENEFIT-COST RATIO: Benefits are from the General Design Memorandum dated December 1986.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$5,080,000
Estimated Non-Federal Cost		1,690,000
Cash Contribution	$ 685,000	
Other	1,005,000	
Total Estimated Project Cost		$6,770,000

STATUS: (1 Jan 90)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	0	May 92

PHYSICAL DATA

Relocation: Utility ($23,000)

	Avg. Height	Length
Levees	12.5 feet	3300 feet
Floodwall	10 feet	350 feet

Pump Plant: 1

Division: North Central District: Rock Island Hannibal, Missouri

29 JAN 1990

SUMMARIZED FINANCIAL DATA (Continued)

			Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1989	$1,308,000		
Conference Allowance for FY 1990	1,940,000		
Allocation for FY 1990	2,162,000	1/	
Allocations through FY 1990	3,470,000		68
Allocations Requested for FY 1991	1,460,000		97
Scheduled Balance to Complete after FY 1991	150,000		
Unscheduled Balance to complete after FY 1991	0		

1/ Reflects reduction of $187,000 assigned as savings and slippage, $20,000 sequestered in accordance with Gramm-Rudman-Hollings Act, and $429,000 reprogrammed to the project.

JUSTIFICATION: The reformulated project would provide a high degree of flood protection for the city of Hannibal, Missouri, which has a population of 18,811 (1980 Census). The area to be protected contained about 50 acres, which has been extensively developed for light industrial, commercial, public, and residential purposes. The area has been damaged frequently in recent years. Major floods affecting the city occurred in May 1944, June 1947, April 1951, April 1960, April 1965, the all-time record flood of April-May 1973, and May 1983. Damages resulting from these floods would amount to $3,308,000, $6,710,000, $700,000, $1,974,000, $4,405,000, $10,960,000 and $4,558,000, respectively, at current prices. Because of changes in the flood plain use since 1962, the city of Hannibal, by letter, dated 10 August 1982, stated its lack of support for the authorized project and its desire to reformulate the project to address current problems and needs. The scope of a reformulated project has been generally limited to an area between the Mark Twain Memorial Bridge and Bear Creek. This area encompasses approximately 19 blocks of downtown riverfront property. The primary purpose of the project would be to protect and preserve the area of high potential damage in the historic Mark Twain District of the downtown area. Portions of this district are on, or are currently eligible for inclusion in, the National Historic Register. The preliminary estimate of average annual flood damages prevented by the reformulated project is $633,000, at 1 October 1989 prices.

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JUSTIFICATION (Continued)

ANNUAL BENEFITS	AMOUNT
Flood Control-Existing	$128,700
Intensification	254,200
Emergency Costs	12,500
Flood Insurance	8,900
Education	142,800
Demolition and Removal Cost	57,300
Increased Value of Vacant Land	28,600
Total	$633,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate: Stage II, Beautification	$ 58,000
Continue: Construction of Stage I, Levees and Floodwalls, and Interior Drainage Facilities	$ 867,000
Complete: Utility relocations	11,000
Complete: Construction of Stage IA, Collier St. Tie-Off	440,000
Continue: Archaeological Mitigation	4,000
Planning, Engineering and Design	18,000
Construction Management (Supervision and Inspection)	62,000
Total	$1,460,000

NON-FEDERAL COSTS: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, and rights-of-way	$ 800,000	N/A

NON-FEDERAL COSTS (Continued)

Modify or relocate buildings, utilities, roads bridges (except railroad bridges), and other facilities where necessary in the construction of the project	180,000	N/A
Provide services for Planning, Engineering and Design and Construction Management for relocation work	25,000	N/A
Pay 10 percent of the cost allocated to flood control in cash to bring the total non-Federal share of flood control costs to 25 percent, and bear all cost of operation, maintenance, and replacement of flood control facilities	685,000	$6,000
Total Non-Federal First Cost	$1,690,000	

STATUS OF LOCAL COOPERATION: The city of Hannibal, Missouri, is the local sponsor for this project. A Local Cooperation Agreement was executed on 29 December 1988.

The current non-Federal cost estimate, $1,690,000, which includes a cash contribution of $685,000 is an increase of $100,000 from the non-Federal cost estimate of $1,590,000 noted in the Local Cooperation Agreement (LCA), which included a cash contribution of $640,000. Our analysis completed in June 1988 for the LCA indicated the sponsor has the financial capability to participate in the project. This belief has not changed.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal Cost Estimate of $5,080,000 is an increase of $300,000 from the latest estimate ($4,780,000) presented to Congress (FY 1990). This change includes the following:

ITEM	INCREMENTAL CHANGE
Price Escalation and Application of an Estimated Inflation Allowance through the Construction Period	$+160,000
Post Contract Award and Other Estimating Adjustments	+140,000
Total	$+300,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on 22 November 1985.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1963 and funds to initiate construction were appropriated in FY 1988. The city of Hannibal unanimously passed a special city Capital Improvement proposal. The city's share will be funded under the "Real Property Tax Increment Allocation Development Act" whereby the city of Hannibal, the Board of Public Works, the Mark Twain Home Board, the Hannibal Visitor and Convention Bureau, and Levee District, formed by property owners in the flood plain, will put up the money for the city's share of the project. Then, over a 20-year period the money will be paid back from a fund composed of the additional taxes which the city will collect when the property in the flood plain increases in value after the project is constructed.

The Archaeological Mitigation contract was awarded in September 1989. The first major construction contract, Stage I, Levees and Floodwalls and Interior Drainage contract is scheduled to be awarded in March 1990.

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Sheyenne River, North Dakota (Continuing)

LOCATION: The project is located in southeastern North Dakota along the Sheyenne River, from near Baldhill Dam downstream to the confluence with the Red River of the North. Parts of Griggs, Barnes, Ransom, Richland and Cass Counties are included in the project area.

DESCRIPTION: The plan consists of (1) 12.7 miles of levee and a 6.8-mile flood diversion channel at West Fargo, (2) 7.4 miles of flood diversion channel from Horace to West Fargo, (3) a 5-foot raise of the Baldhill Dam flood control pool, and (4) a dam and reservoir with approximately 35,000 acre-feet of storage for flood control on the Maple River. The plan, excluding the Maple River dam, would remove about 2,000 residences and farmsteads from the 100-year floodplain and reduce flood damages on more than 50,000 acres of agricultural land. Estimated damages caused by a 1-percent-chance flood are $109 million. On an average annual basis, over $28 million in flood damages are estimated in the basin. Most of these damages occur in the West Fargo urban area.

Scheduled construction includes the West Fargo Unit ($14,600,000 Federal and $8,800,000 Non-Federal) and the Horace to West Fargo Unit ($4,900,000 Federal and $2,700,000 Non-Federal).

Unscheduled construction includes the Baldhill Dam Unit ($9,700,000 Federal and $5,600,000 Non-Federal) and the Maple River Reservoir Unit ($14,300,000 Federal and $4,900,000 Non-Federal).

AUTHORIZATION: Section 401 of the Water Resources Development Act of 1986, Public Law 99-662.

REMAINING BENEFIT-REMAINING COST RATIO: 9.4 to 1 at 8 5/8 percent.

TOTAL BENEFIT-COST RATIO: 5.9 to 1 at 8 5/8 percent.

INITIAL BENEFIT-COST RATIO: 6.1 to 1 at 8 5/8 percent (FY 1989).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation (General Design Memorandum) approved in July 1987 at October 1986 price levels.

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SUMMARIZED FINANCIAL DATA

				Accum. Pct. of Est.Fed. Cost
Estimated Federal Cost			$43,500,000	
Scheduled Construction		21,500,000		
Unscheduled Construction		22,000,000		
Estimated Non-Federal Cost			22,000,000	
Scheduled Construction		11,500,000		
Cash Contributions	1,550,000			
Other Costs	9,950,000			
Estimated Non-Federal Cost				
Unscheduled Construction		10,500,000		
Cash Contributions	1,725,000			
Other Costs	8,775,000			
Total Estimated Scheduled Construction Cost			33,000,000	
Total Estimated Unscheduled Construction Cost			32,500,000	
Total Estimated Project Cost			65,500,000	
Allocations to 30 September 1989			4,413,000	
Conference Allowance for FY 1990			5,500,000	
Allocation for FY 1990			4,755,000 2/	
Allocations through FY 1990			9,168,000	21
Allocation Requested for FY 1991			8,900,000	42
Scheduled Balance to Complete After FY 1991			3,432,000	
Unscheduled Balance to Complete After FY 1991			22,000,000	

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
West Fargo Unit	0	Aug 1992
Horace to West Fargo Unit	0	Aug 1992
Baldhill Dam Unit	0	Indefinite
Maple River Reservoir Unit	0	Indefinite
Total Project	0	Aug 1992 1/

1/ Based on the completion dates of both the West Fargo Unit and the Horace to West Fargo Unit. Completion of remaining work is indefinite pending a decision to construct these units.

2/ Reflects reductions of $531,000 assigned as savings and slippage, $57,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $157,000 reprogrammed from the project.

PHYSICAL DATA

WEST FARGO UNIT:

Earthen Levee	12.7 miles
Flood Diversion Channel	6.8 miles

BALDHILL DAM UNIT:

Flood Control Pool	5-foot raise (by modifications to gates)

HORACE TO WEST FARGO UNIT:

Trapezoidal Excavated Channel	7.4 miles

MAPLE RIVER RESERVOIR UNIT:

Earth Fill Dam	Sixty (60)-feet high
Flood Control Storage Area	35,000 acre-feet

DIVISION: North Central   DISTRICT: St. Paul   Sheyenne River, North Dakota

29 JAN 1990

JUSTIFICATION: The Sheyenne River, located in the southeastern portion of North Dakota, drains 7,140 square miles into the Red River of the North which flows northward to Lake Winnipeg in Manitoba, Canada. Recurrent flooding causes serious damage at the communities of Valley City, Lisbon, and West Fargo, and along the Sheyenne River. High Sheyenne River flows also aggravate downstream flooding along the Red River of the North. The maximum flood of record in 1882 inundated much of Valley City and Kindred. Over 100,000 acres of cropland in the basin were flooded by the Red River of the North and the Sheyenne, Wild Rice and Maple Rivers. On 5 July 1975, the flood in the Sheyenne River basin crested at Kindred within 0.3 foot of the record flood, and the crest at West Fargo set a new record. Actual flood damages for this flood were $96,762,000 of which $2,132,000 were urban and $94,630,000 were rural. Urban flood damages of $14,159,000 were prevented due to emergency levee protection. The rural damages include cross-country (sheet flow) as well as over-bank flooding. In 1979, the Sheyenne River at West Fargo reached a flow of 3,500 cfs and a stage .03 foot less than the 1975 summer flood. Damages including the cost of successful flood fights were $7,388,000, of which $1,903,000 were urban, $4,676,000 agricultural, and $809,000 transportation. The average annual flood damages for the Sheyenne River basin from over-bank flooding over an assumed 100-year period at October 1989 price levels are estimated at $31,975,000, of which $30,046,000 are urban, $1,645,000 agricultural and $284,000 transportation. The recommended improvements will protect about 2,000 residences and farmsteads in the 100-year floodplain and reduce flood damages on over 50,000 acres of agricultural land. The average annual benefits are as follows:

Annual Benefits	Amount (1 October 1989)
Flood Control	$23,461,400
Total	$23,461,400

FISCAL YEAR 1991: The requested amount will be applied as follows:

WEST FARGO RIVERSIDE UNIT:	Continue Construction of Relocations	$ 692,000
	Complete Construction of Railroad Bridge	282,000
	Continue Construction of Channels	2,840,000
	Continue Construction of Levees	1,403,000
	Initiate Construction of Pumping Stations	332,000
	Continue Construction of Diversion Structures	300,000
	Planning, Engineering and Design	50,000
	Construction Management	271,000
	Sub-Total	$6,170,000

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FISCAL YEAR 1991 (Continued)

HORACE TO WEST FARGO UNIT:	Continue Construction of Channels	$1,120,000
	Continue Construction of Levees	450,000
	Continue Construction of Diversion Structures	400,000
	Planning, Engineering and Design	50,000
	Construction Management	100,000
	Sub-Total	$2,120,000
BALDHILL DAM UNIT:	Planning, Engineering and Design	$ 150,000
MAPLE RIVER RESERVOIR UNIT:	Planning, Engineering and Design	$ 460,000
	GRAND TOTAL	$8,900,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Cost
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$10,990,000	
Modify or relocate buildings, utilities, roads, bridges, (except railroad bridges), and other facilities, where necessary in the construction of the project.	7,735,000	
Pay 5 percent of the costs allocated to flood control, and bear all costs of operation, maintenance, and replacement of flood control facilities.	3,275,000	$76,000
Total Non-Federal First Cost	$22,000,000	

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

DIVISION: North Central DISTRICT: St. Paul Sheyenne River, North Dakota

STATUS OF LOCAL COOPERATION: The project consists of four separable components or Units, and there will be four Local Cooperation Agreements (LCA's) developed for sponsorship. The Southeast Cass Water Resource District will serve as the local sponsor for the West Fargo Unit and the Horace to West Fargo Unit, because it has responsibility for these two entire project areas and possesses the necessary powers and meets the test to serve as the legal entity. The LCA for the West Fargo Unit was executed on 25 July 1988. The current non-Federal cost estimate of $8,800,000 for the West Fargo Unit includes a cash contribution of $1,170,000, which represents an increase of $50,000 in the cash contribution of $1,120,000 noted in the LCA. The LCA for the Horace Unit is scheduled for execution in the 2nd Quarter FY 1990. By letter dated 4 April 1989, the Southeast Cass Water Resources District provided the documentation of its financial ability to implement the local share of the Horace to West Fargo Unit, and indicated that the board is anxious to proceed with initiation of construction of this unit in FY 1990. The State Water Commission could serve as the quasi-sponsor for the other components/Units, until a formal sponsorship arrangement is determined by the benefiting entities.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $43,500,000 is a decrease of $4,900,000 from the latest estimate ($48,400,000) presented to Congress (FY 1989). This change includes the following items:

Item	Incremental Change
Price Escalation on Construction Features	$-4,093,000 1/
Design Changes	+15,000
Post Contract Award and Other Estimating Adjustments	-822,000
Total	$-4,900,000

1/ Includes adjustments in the estimated inflation allowance through the construction period.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Draft Environmental Impact Statement was filed with the Environmental Protection Agency (EPA) on 28 May 1982. The final statement was filed with the EPA on 13 April 1984. The Record of Decision was signed on 6 June 1987.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1976.

No State or Federal agency expressed opposition to the project. However, a significant amount of opposition to the raise of the Baldhill Dam flood control pool was expressed by property owners around the lake, especially at the upper end of the lake. Much of the opposition expressed came from individuals and churches associated with the Cooperstown Bible Camp, a portion of which would have to be purchased as a part of the raise of the pool, and from the Association for the Preservation of the Sheyenne River Valley which represents primarily landowners around and upstream of Lake Ashtabula. Several counties adjacent to and in the vicinity of Baldhill Dam have also expressed opposition to the raise of the flood control pool primarily because private property is to be acquired for the project. Some people living north of West Fargo, in the Harwood area, expressed concerns about several aspects of the selected project. The primary concern is the perceived potential for adverse effects on their area because of the diversions. Also of concern is the lack of a firm schedule for implementing the Maple River Reservoir Unit to provide flood protection for their area. The Southeast Cass, North Cass and Maple River Water Management Districts are coordinating the evaluations being conducted on the Maple River reservoir site.

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APPROPRIATION TITLE: Construction - General - Local Protection (Flood Control)

PROJECT: State Road and Ebner Coulees, Wisconsin (Continuing)

LOCATION: State Road Coulee, a tributary of the Mississippi River, is located in La Crosse County in west-central Wisconsin on the south side of the city of La Crosse.

DESCRIPTION: The project will deepen and enlarge the State Road/Pammel Creek stream bed from Hagen Road bridge to the stream mouth. Project features include construction of 13,600 feet of rectangular concrete channel, an inlet structure, a stilling basin, three bridge replacements, and a terminus structure. The project will provide standard project flood protection and all but eliminate flood damages in the study area. The Ebner Coulee portion of the project was deleted in FY 1982 because it lacked economic justification.

AUTHORIZATION: Section 203 of the Flood Control Act of 1968 (Public Law 90-483).

REMAINING BENEFIT - REMAINING COST RATIO: 2.5 to 1 at 8 5/8 percent.

INITIAL BENEFIT-COST RATIO: 1.16 to 1 at 8 7/8 percent (FY 1988).

TOTAL BENEFIT-COST RATIO: 1.2 to 1 at 8 7/8 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from the General Design Memorandum and draft Environmental Impact Statement dated January 1985 at December 1984 price levels.

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$25,500,000	
Estimated Non-Federal Cost		8,500,000	
Cash Contribution	$5,750,000		
Other	1,750,000		
Credit in lieu of Cash for Advance Work	1,000,000		
Total Estimated Project Cost		$34,000,000	

STATUS: (1 January 1990)	PERCENT COMPLETE 1/	COMPLETION SCHEDULE
Entire Project	26	Sep 1993

1/ Includes advance work by local interests.

DIVISION: North Central DISTRICT: St. Paul State Road and Ebner Coulees, Wisconsin

SUMMARIZED FINANCIAL COST (Continued)

		Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1989	7,409,000 1/	
Conference Allowance for FY 1990	5,700,000	
Allocation for FY 1990	3,813,000 2/	
Allocations through FY 1990	11,222,000	44
Allocation Requested for FY 1991	6,300,000	69
Scheduled Balance to Complete after FY 1991	7,978,000	
Unscheduled Balance to Complete after FY 1991	0	

1/ Includes $1,077,000 appropriated under General Investigations.

2/ Reflects $550,000 assigned as savings and slippage, $59,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $1,278,000 reprogrammed from the project.

PHYSICAL DATA

Relocations:	
Roadway Bridge Replacements	3
Railroad Bridge Replacement	1

Channels:	
Channel Improvement	13,600 linear feet
Drop Inlet Structures	1
Stilling Basin	1
Terminus Structure	1

JUSTIFICATION: State Road Coulee drains a 4.5 square mile area which is extremely steep and rocky, resulting in very rapid run-off. Inadequate channel capacities in the lower reaches contribute to the flood problem. As a result, the wide valley floor is inundated. Overland flood depths could reach 5 feet. Because of extensive urban development in the floodplain, run-off now causes major damages to residences, business establishments, roads, and bridges. The coulee floodplain provides the only available area for residential expansion based on the topography of the area. Flood damage potential is becoming progressively more serious as this rapid residential development continues. Average annual damages under existing conditions to residential, commercial, and public properties are estimated at $2,550,000. Flood damages to residential property comprise the greater part of total damage. The proposed plan would provide standard project flood (SPF) protection to this urban area against run-off. The average annual benefits are as follows:

Annual Benefits	Amount (1 October 1989)
Flood Control	$3,718,000
Advance Replacement of Existing Bridges	9,000
Total	$3,727,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate:	Construction of Stage 3 Channel Improvements	$ 1,005,000
Complete:	Construction of Stage 2 Channel Improvements	4,413,000
	Planning, Engineering and Design	397,000
	Construction Management	485,000
Total		$ 6,300,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in The Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance and Replacement Costs
Provide lands, easements, rights-of-way and dredged disposal areas.	$ 402,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges) and other facilities where necessary in the construction of the project.	1,348,000	
Pay 17 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation and maintenance, and replacement of flood control facilities which is partially offset by a credit allowed for prior work (Section 104 of the 1986 WRDA).	6,750,000	$5,500
Total Non-Federal Costs	$8,500,000	

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

DIVISION: North Central DISTRICT: St. Paul State Road and Ebner Coulees, Wisconsin

STATUS OF LOCAL COOPERATION: The local sponsor, the city of La Crosse, signed the Local Cooperation Agreement (LCA) on 29 July 1988. The LCA was executed by the Assistant Secretary of the Army for Civil Works on 11 August 1988. The current non-Federal cost estimate of $8,500,000, which includes a cash contribution of $6,750,000, is a decrease of $300,000 from the non-Federal cost estimate of $8,800,000 noted in the LCA, which included a cash contribution of $6,000,000. Our analysis of the city of La Crosse's financial capability to participate in the project affirms that the city has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $25,500,000 is a decrease of $900,000 from the latest estimate ($26,400,000) presented to Congress (FY 1990). This change includes the following items:

Item	Incremental Change
Price Escalation on Construction Features	$ -848,000
Post Contract Award and Other Estimating Adjustments	+18,000
Sundry	-70,000
Total	$ -900,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A draft Environmental Impact Statement (EIS) was submitted to the Environmental Protection Agency on 20 April 1981. The final statement was submitted 29 January 1982. A final supplement to the EIS was filed on 14 February 1986.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1974. Preconstruction planning for the project was halted and the project placed in the "inactive" category in FY 1977 because, at that time, local interests were not prepared to assume responsibility for local cooperation. The project was reclassified to the "active" category in November 1978 following resolutions by the La Crosse County Board and the Shelby Town Board evidencing their strong renewed interest in the project. The Ebner Coulee portion of the authorized project was deleted from further Federal consideration during studies for the Phase I GDM which indicated a lack of economic feasibility for that portion of the project. Preconstruction planning was resumed in FY 1979 and was completed in May 1986.

APPROPRIATION TITLE: Construction, General - Reservoirs (Flood Control)

PROJECT: Souris River Basin, North Dakota (Continuing)

LOCATION: On the Souris River in Ward, Renville, McHenry and Bottineau Counties in northwestern North Dakota and the payment for flood control storage in Saskatchewan, Canada. The existing Lake Darling Dam, is located about 20 miles northwest of Minot, North Dakota. The project also includes features at the communities of Sawyer and Velva and at various locations along the 358-mile U.S. portion of the Souris River.

DESCRIPTION: The work under the current plan consists of two reservoirs in Saskatchewan, Canada (known as the Rafferty and Alameda projects); a modified outflow structure and dam safety improvements at Lake Darling Dam; a flood warning system; levee improvements at Sawyer, Renville County Park, and six subdivisions from Burlington to Minot, flood proofing of about 90 rural homes in the basin and the purchase of flowage easements; modifications to dams 87 and 96 in the Upper Souris National Wildlife Refuge; modifications to dams 320, 326, 332, 341 and 357 in the J. Clark Salyer National Wildlife Refuge; and compensation to Manitoba, Canada for altered return flows. Channel and levee improvement work at Velva, North Dakota, is complete.

AUTHORIZATION: Section 1124 of the Water Resources Development Act of 1986 (Public Law 99-662).

REMAINING BENEFIT - REMAINING COST RATIO: 4.5 to 1 at 5 1/8 percent.

TOTAL BENEFIT-COST RATIO: 1.7 to 1 at 5 1/8 percent.

INITIAL BENEFIT-COST RATIO: 2.6 to 1 at 5 1/8 percent (FY 1982).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation (Phase 2, General Design Memorandum No. 3) approved in September 1983 at October 1983 price levels.

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SUMMARIZED FINANCIAL DATA

			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$ 92,600,000	
Estimated Non-Federal Cost		9,070,000	
Cash Contribution	$ 5,950,000		
Other	3,120,000		
Total Estimated Project Cost		$101,670,000	
Allocations to 30 September 1989		$ 10,572,000	
Conference Allowance for FY 1990		10,220,000	
Allocation for FY 1990		38,966,000 1/	
Allocations through FY 1990		49,538,000	54
Allocation Requested for FY 1991		25,400,000	81
Scheduled Balance to Complete after FY 1991		17,662,000	
Unscheduled Balance to Complete after FY 1991		0	

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Velva Unit	100	Apr 1989
Reservoirs Unit	11	Aug 1994
Entire Project	15	Aug 1994

1/ Reflects reduction of $986,000 assigned as savings and slippage, $105,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $29,837,000 reprogrammed to the project.

PHYSICAL DATA

Flood Control Storage in Saskatchewan (for 100-year flood):

Rafferty Dam -	265,500 acre-feet
Alameda Dam -	111,600 acre-feet

Flood Control Storage in the United States:
Existing Lake Darling Dam - 105,600 acre-feet

Downstream Improvements:

Levees (Community)	8.1 miles
Channels	4.5 miles
Easements	4,000 acres
Pumping Plants:	7
Rural Floodproofing	90 homes

JUSTIFICATION: Large floods originating primarily from snowmelt in the Canadian portion of the Souris River basin cause extensive damages and much human suffering and hardship in the basin. In 1980, the population of the entire Souris River basin in the United States totaled 95,000. The major population center in the basin is Minot, with a 1980 census of 32,886. Since 1936, Lake Darling Reservoir, operated by the U.S. Fish and Wildlife Service, has reduced flood damages by controlling several small floods. Because only minor floods occurred during an extended period following construction of the Lake Darling Dam, the problem of flooding became a matter of little concern for interests in the vicinity of Minot and numerous residential and commercial developments were constructed in the Souris River floodplain. The 1969 spring flood (25-year flood) greatly exceeded the available flood storage capacity of Lake Darling and caused damages, including flood-fight costs of about $10,900,000 at Minot and about $1,600,000 in the remainder of the Souris Valley. Without emergency measures, damages would have reached $19,300,000 in Minot. The flood inundated 3,000 homes and required

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JUSTIFICATION (Continued)

evacuation of nearly 11,800 persons, approximately one-third of the population of Minot causing much human hardship. Again in 1970, heavy mid-April snowstorms created a serious flood threat. Through advance flood forecasts and timely actions generally in accordance with a flood emergency plan, a potential flood disaster in the Souris River Valley was averted. Nevertheless, urban and rural damages amounted to $2,700,000 including all flood fight costs. Damages without a flood fight would have amounted to $4,600,000. Another significant flood occurred in April 1976 (75 year flood) causing actual urban and agricultural damages of $15,300,000 including $6,500,000 for flood fight and cleanup costs at urban locations. The most recent flood occurred in May 1979. Damages for the main stem totaled $1,600,000. Damages prevented by emergency work amounted to $2,000,000. The Minot Channel Project prevented damages of $40,900,000. Estimated damages if equivalent floods occurred at the present time without the project in operation and without a flood fight would amount to about $77,746,000 for the 1969 flood, $17,317,000 for the 1970 flood, $76,352,000 for the 1975 flood, $147,590,000 for the 1976 flood, and $77,746,000 for the 1979 flood. Construction of the project will substantially reduce these damages. The average annual damages without the project are $8,909,200 compared to $3,092,000 with the project. The project includes work in Renville, Ward, McHenry and Bottineau Counties in North Dakota. Renville and McHenry Counties have been designated as redevelopment areas under Title IV of the Public Works and Economic Development Act of 1965 (Public Law 89-136).

The average annual benefits are as follows:

Annual Benefits	Amount (1 October 1989)
Flood Control	$7,479,100
Future Capital Cost-Savings	252,900
Total	$7,732,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Payments to Saskatchewan	$12,588,000
Construction-Refuge Structures	4,419,000
Construction-Sawyer Improvements	589,000
Construction-Burlington to Minot Stage 1 Improvements	100,000
Construction-Burlington to Minot Stages 2, 3 Improvements	635,000
Construction-Burlington to Minot Stage 4 Improvements	2,454,000
Construction-Renville County Park Improvements	1,028,000
Construction - Rural Improvements	1,523,000
Hydrometric Instrumentation	182,000
Planning, Engineering and Design	1,282,000
Construction Management	600,000
Total	$25,400,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Auuual Operation, Maintenance and Replacement Costs
Provide lands, easements, and rights-of-way, and dredged material disposal areas.	$2,587,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	186,000	
Provide 20 percent of total non-structural flood proofing costs for rural improvements.	725,000	
Pay 25 percent of the cost allocated to a proportionate use for flood control associated with the construction of the Alameda and Rafferty Dams and bear all costs of operation, maintenance, and replacement of the Burlington to Minot, Velva, Sawyer and Renville County Park levee improvements; the flood warning system, and the floodproofing of homes.	5,572,000	$62,000
Total Non-Federal First Cost	$9,070,000	$62,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

DIVISION: North Central DISTRICT: St. Paul Souris River Basin, North Dakota

STATUS OF LOCAL COOPERATION: By resolution dated 19 June 1969, the Ward County Water Management Board agreed to sponsor a channel improvement project at Minot and meet the local cooperation requirements for an overall flood protection plan. When the Lake Darling project was authorized, there was a recognized need for a joint board representing the counties affected by the project to serve as local sponsor. On 18 August 1982, the Ward County Water Resources District provided a letter of intent to accept the responsibilities as the lead agency of a joint organization. The letter indicated a willingness to work in good faith with the Administration of the United States in the planning and funding process for the project. On 6 June 1983, the representatives of the water resources districts from Ward, Renville, McHenry, and Bottineau Counties and the Oak Creek drainage area agreed to become members of a Souris River Joint Board for flood control, which would serve as local sponsor for the project. The general letter of intent to serve as a local sponsor was signed by their president on 14 June 1983. The Secretary of the Army recommended separating the Velva feature from the rest of the Lake Darling project, and a separate local cooperation agreement was drawn up for that feature. This local cooperation agreement was signed by the local sponsor on 19 November 1984 and by the District Engineer on 20 November 1984. In August 1985, the Souris River Joint Board provided a letter of intent to serve for participation in the Souris River basin project. In September 1985, the Joint Exercise of Power Agreement was amended to give the Board the authority to provide local sponsorship and was amended in February 1987 to allow the Board to incur financial obligation and make payment of the local sponsor's share of the project costs. The local cooperation agreement for the remainder of the authorized project was signed on 24 October 1989.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $92,600,000 is an increase of $9,900,000 over the latest estimate ($82,700,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features (including Currency Fluctuation Adjustments)	$+8,586,000
Design Changes	-105,000
Post Contract Award and Other Estimating Adjustments	+1,770,000
Sundry	-351,000
Total	$+9,900,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Impact Statement (EIS) reporting requirements can be accomplished using the tiering principle. Initially, a generic (programmatic) EIS, showing basin-wide impacts of the project, and also including site specific documentation for the Velva levee feature, was prepared. This was followed by a site specific EIS for the 4-foot raise of the Lake Darling Dam design pool. The initial Draft Environmental Impact Statement was submitted to the Environmental Protection Agency and distributed for public review in October 1982. The final generic/Velva EIS was filed on 24 February 1984. The final Feature Environmental Impact Statement (Lake Darling Dam 4-foot raise) was filed on 14 February 1986. The Record of Decision (ROD) for the proposed 4-foot raise of Lake Darling and the related features was issued on 30 June 1986. A draft Environmental Impact Statement for the project as authorized by the Water Resources Development Act of 1986 (purchase of flood storage in Canada) was submitted to the Environmental Protection Agency on 16 November 1987. The final document was submitted to the Environmental Protection Agency in July 1988. Public Review of the document was completed in August 1988. The ROD and Compatibility Statement were signed in October 1989.

OTHER INFORMATION: Initial construction funds were made available in FY 1982.
The Lake Darling/Souris River Basin project is the second phase of the total flood control plan for the Souris Valley in North Dakota. The channel modification in Minot, which was authorized in the summer of 1970 and completed in 1979, was the first phase of construction. The Burlington Dam project was previously authorized as the second phase of the flood control plan in December 1970. However, due to the controversial nature of the Burlington Dam project, a scaled-down project was pursued by local interests. The resulting action was the authorization in the 1982 Energy and Water Development Appropriations Act, Public Law 97-88, to raise the dam at Lake Darling by approximately 4 feet and to implement upstream and downstream flood control measures. Features of this project were also included in the Burlington Dam plan; however, the Burlington Dam and Des Lacs River Diversion improvements have now been placed in a deferred status (the Senate Committee directed that the Corps take no further action to construct Burlington Dam until expressly directed to do so by the Committee). The Water Resources Development Act of 1986 authorized the study and construction of reservoir projects for storage in the Souris River Basin in Canada which will provide flood control benefits in the United States. Upon completion of the structures in Canada, the construction of Burlington Dam and modifications at Lake Darling Dam to raise the level of the dam structure shall no longer be authorized.

OTHER INFORMATION (Continued)

On 10 April 1989, as a result of a lawsuit filed by the Canadian Wildlife Federation, a Canadian judge withdrew the license to construct Rafferty Dam due to noncompliance with provisions of the Canadian Environmental Assessment Review Process Guidelines. Environment Canada undertook a basinwide Initial Environmental Evaluation and held a series of public meetings. The injunction was lifted in August 1989 and construction of the dams has resumed. The International Agreement was signed on 26 October 1989.

The Memorandum of Understanding between the Department of the Interior and the Department of the Army regarding project work in the Upper Souris and J. Clark Salyer National Wildlife Refuges was completed and signed on 2 June 1989.

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NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation
   a. Channels and Harbors

The budget estimate of $58,587,000 provides for essential maintenance work on 88 channels and harbors projects named in the list which follows. The work to be accomplished under this activity consists of maintaining the Great Lakes harbors and waterways by means of dredging, snagging, and repairing harbor jetties and breakwaters, all as authorized in the laws adopting river and harbor projects.

OBLIGATIONS

Project	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
Illinois				
Chicago Harbor	1,288,000	1,243,000	1,133,000	Lock control structure repairs FY 89.
Chicago River	1,068,000	879,000	1,923,000	Variation in dredging requirements.
Waukegan Harbor	205,000	1,023,000	908,000	Periodic dredging, design confined disposal facility FY 90. Initiate construction of confined disposal facility FY 91.
Illinois & Indiana				
Calumet Harbor & River	2,713,000	817,000	157,000	Repair breakwater FY 90. FY 89 includes major rehabilitation funds in the amount of $2,193,000.

NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (Cont'd)
    a. Channels and Harbors (Cont'd)

OBLIGATIONS

Project	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
Indiana				
Burns Waterway Harbor	1,010,000	46,000	143,000	Replace damaged stone on breakwater FY 89. Prepare dredging plans FY 91.
Burns Waterway Small Boat Harbor	191,000	105,000	340,000	Monitor shore erosion mitigation FY 89. Periodic dredging FY 91.
Indiana Harbor	632,000	557,000	597,000	Conduct dredged material disposal studies FY 89.
Michigan City Harbor	287,000	1,738,000	52,000	Resurface east pier cap, cap confined disposal facility FY 89 & 90.
Iowa				
Fort Madison Harbor	0	0	68,000	Periodic dredging FY 91.
Michigan				
Alpena Harbor	0	0	238,000	Periodic dredging FY 91.
Arcadia Harbor	2,160,000	110,000	78,000	Repair revetments FY 89.
AuSable Harbor	17,000	15,000	266,000	Periodic dredging FY 91.
Big Bay Harbor	0	0	135,000	Periodic dredging FY 91.
Bolles Harbor	15,000	0	253,000	Survey channel FY 89. Repair disposal area, periodic dredging FY 91.

NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (Cont'd)
   a. Channels and Harbors (Cont'd)

OBLIGATIONS

Project	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
Michigan (Cont'd)				
Caseville Harbor	0	0	168,000	Periodic dredging FY 91.
Channels in Lake St. Clair	62,000	138,000	391,000	Variation in survey requirements. Periodic dredging FY 91.
Channels in Straits of Mackinac	0	70,000	213,000	Remove obstructions FY 90. Periodic dredging FY 91.
Charlevoix Harbor	1,528,000	44,000	24,000	Repair south pier and revetment FY 89.
Cheboygan Harbor	0	0	166,000	Periodic dredging FY 91.
Clinton River	124,000	284,000	68,000	Design offloading platform FY 89. Construct offloading platform FY 90.
Detroit River	3,732,000	4,055,000	2,963,000	Variation in dredging requirements.
Frankfort Harbor	78,000	271,000	158,000	Repair breakwaters FY 90 & 91.
Grand Haven Harbor	1,056,000	808,000	870,000	Variation in dredging requirements.
Grand Traverse Harbor	28,000	0	121,000	Repair north breakwater FY 89. Periodic dredging FY 91.
Grays Reef Passage	0	0	44,000	Survey channel FY 91.
Harbor Beach Harbor	330,000	2,367,000	781,000	Repair main breakwater FY 90 & 91.
Harrisville Harbor	0	0	151,000	Periodic dredging FY 91.
Holland Harbor	3,968,000	2,165,000	510,000	Repair revetment FY 89 & 90.

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NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (Cont'd)
   a. Channels and Harbors (Cont'd)

OBLIGATIONS

Project	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
Michigan (Cont'd)				
Inland Route	46,000	24,000	19,000	Operate lock FY 89. Lock in caretaker status FY 90 & 91.
Keweenaw Waterway	4,565,000	2,686,000	664,000	Repair revetment FY 89 & 90.
Leland Harbor	128,000	113,000	117,000	Variation in dredging requirements.
Lexington Harbor	320,000	38,000	111,000	Mitigate shore damage FY 89. Periodic dredging FY 91.
Little Lake Harbor	161,000	151,000	120,000	Variation in dredging requirements.
Ludington Harbor	161,000	492,000	510,000	Periodic dredging FY 90 & 91.
Manistee Harbor	455,000	0	214,000	Periodic dredging FY 89. Repair breakwater FY 91.
Manistique Harbor	170,000	60,000	709,000	Repair breakwaters FY 89. Repair breakwaters, periodic dredging FY 91.
Marquette Harbor	1,000	158,000	236,000	Repair east breakwater FY 90 & 91.
Monroe Harbor	531,000	1,029,000	188,000	Periodic dredging FY 89 & 90.
Muskegon Harbor	560,000	258,000	277,000	Mitigate shore erosion FY 89.
Ontonagon Harbor	679,000	774,000	2,850,000	Repair west revetment FY 90 & 91.
Pentwater Harbor	268,000	147,000	151,000	Repair piers and revetment FY 89.
Port Sanilac Harbor	84,000	48,000	210,000	Repair breakwaters FY 89. Periodic dredging FY 91.

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NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (Cont'd)
   a. Channels and Harbors (Cont'd)

	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
Michigan (Cont'd)				
Presque Isle Harbor	0	88,000	369,000	Design breakwater repair FY 90. Repair breakwater FY 91.
Rouge River	827,000	154,000	724,000	Periodic dredging FY 89 & 91.
Saginaw River	1,649,000	2,624,000	4,050,000	Variation in dredging requirements. Repair existing disposal area, design confined disposal facility FY 91.
St. Clair River	574,000	668,000	910,000	Variation in dredging requirements.
St. Joseph Harbor	609,000	868,000	711,000	Variation in dredging requirements.
Whitefish Point Harbor	13,000	104,000	94,000	Periodic dredging FY 90 & 91.
Michigan & Wisconsin				
Menominee Harbor	118,000	333,000	23,000	Repair breakwater FY 89. Periodic dredging FY 90.
Minnesota				
Minnesota River	113,000	320,000	272,000	Variation in dredging requirements.
St. Paul Small Boat Harbor	0	0	15,000	Periodic dredging FY 91.

29 JAN 1990

NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (Cont'd)
   a. Channels and Harbors (Cont'd)

OBLIGATIONS

Project	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
Minnesota (Cont'd)				
Two Harbors Harbor	160,000	104,000	2,635,000	Repair west pier FY 91.
Winona Small Boat Harbor	0	0	15,000	Periodic dredging FY 91.
Minnesota & Wisconsin				
Duluth-Superior Harbor	2,687,000	3,289,000	4,027,000	Variation in dredging requirements.
Missouri				
Hannibal Harbor	0	0	68,000	Periodic dredging FY 91.
New York				
Buffalo Harbor	770,000	1,400,000	1,507,000	Variation in dredging requirements.
Cattaraugus Creek Harbor	8,000	25,000	250,000	Periodic dredging FY 91
Dunkirk Harbor	145,000	110,000	225,000	Repair breakwater FY 89. Periodic dredging FY 91.
Oak Orchard Harbor	10,000	0	150,000	Periodic dredging FY 91.
Olcott Harbor	12,000	0	145,000	Periodic dredging FY 91.
Oswego Harbor	0	395,000	405,000	Periodic dredging FY 90. Repair breakwater FY 91.

NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (Cont'd)
   a. Channels and Harbors (Cont'd)

OBLIGATIONS

Project	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
New York (Cont'd)				
Rochester Harbor	47,000	1,675,000	801,000	Variation in dredging requirements.
Wilson Harbor	12,000	0	230,000	Periodic dredging FY 91.
Ohio				
Ashtabula Harbor	903,000	700,000	267,000	Periodic dredging FY 89 & 90.
Cleveland Harbor	2,986,000	3,980,000	3,362,000	Variation in dredging requirements.
Conneaut Harbor	128,000	725,000	220,000	Periodic dredging FY 90. Repair breakwater FY 91.
Fairport Harbor	836,000	275,000	37,000	Periodic dredging FY 89. Repair breakwater FY 90.
Huron Harbor	0	775,000	37,000	Periodic dredging, repair disposal area FY 90.
Lorain Harbor	548,000	1,500,000	1,149,000	Periodic dredging FY 90 & 91. Repair disposal area FY 90.
Rocky River Harbor	12,000	20,000	250,000	Periodic dredging FY 91.
Sandusky Harbor	448,000	1,500,000	320,000	Periodic dredging FY 89 & 90.
Toledo Harbor	2,907,000	4,700,000	7,862,000	Variation in dredging requirements. Initiate construction of confined disposal facility FY 90.

NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (Cont'd)
a. Channels and Harbors (Cont'd)

OBLIGATIONS

Project	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
Ohio (Cont'd)				
Vermilion Harbor	25,000	0	275,000	Periodic dredging FY 91.
West Harbor	193,000	0	75,000	Periodic dredging FY 89 & 91.
Pennsylvania				
Erie	383,000	525,000	87,000	Repair breakwater FY 89. Periodic dredging FY 90.
Wisconsin				
Ashland Harbor	76,000	241,000	542,000	Repair breakwater FY 90. Periodic dredging FY 91.
Cornucopia Harbor	0	0	124,000	Periodic dredging FY 91.
Green Bay Harbor	2,800,000	1,481,000	1,259,000	Variation in dredging requirements.
Kenosha Harbor	227,000	1,705,000	138,000	Design breakwater and repair disposal area FY 89. Repair breakwater, repair disposal area FY 90.
Kewaunee Harbor	577,000	191,000	317,000	Periodic dredging FY 89. Repair disposal area FY 91.
LaPointe Harbor	0	0	92,000	Periodic dredging FY 91.
Manitowoc Harbor	134,000	167,000	360,000	Repair south breakwater FY 91.

29 JAN 1990

NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (Cont'd)

a. Channels and Harbors (Cont'd)

OBLIGATIONS

Project	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
Wisconsin (Cont'd)				
Milwaukee Harbor	1,204,000	1,651,000	2,395,000	Periodic dredging FY 90 & 91. Repair south breakwater FY 91. FY 89 & 90 include major rehabilitation at $757,000 and $50,000, respectively.
Oconto Harbor	0	0	363,000	Periodic dredging FY 91.
Pepin Small Boat Harbor	0	0	8,000	Periodic dredging FY 91.
Port Wing Harbor	1,000	0	135,000	Periodic dredging FY 91.
Sheboygan Harbor	61,000	496,000	486,000	Periodic dredging FY 90 & 91.
Sturgeon Bay Harbor & Lake Michigan Ship Canal	250,000	1,058,000	699,000	Construct offloading facility FY 90. Periodic dredging FY 91.
Other Projects Maintained Periodically	2,684,000	1,030,000		
Sub-Total Regular O&M For Channels & Harbors	53,758,000	57,590,000	57,780,000	

NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (Cont'd)
   a. Channels and Harbors (Cont'd)

DIKED DISPOSAL

The budget estimate of $807,000 provides for initiation of construction of 1 confined disposal facility.

OBLIGATIONS

Project	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
Wisconsin				
Green Bay Harbor	0	120,000	807,000	Initiate construction of confined disposal facility FY 91.
Other Diked Disposal Projects	2,241,000	548,000	--	
Sub-Total Diked Disposal	2,241,000	668,000	807,000	
Total-Channels & Harbors	55,999,000	58,258,000	58,587,000	

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NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (Cont'd)

b. Locks, Dams & Canals

The budget estimate of $97,172,000 provides for the operational requirements of two projects, portions of the Illinois Waterway and Mississippi River projects, and caretaker status of the Fox River, Wisconsin, project. Requirements include: operation of project facilities; labor; supplies; material and parts required for day-to-day functioning of projects; and periodic maintenance, repairs and replacements. The requested amount also includes application of special recreation use fees for recreation areas.

OBLIGATIONS

Project	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
Illinois				
Illinois Waterway (NCD)	23,454,000	16,156,000	14,355,000	Construct guard cells above Marseilles Dam FY 91. FY 89 & 90 include major rehabilitation at $10,905,000 & $3,850,000, respectively.
Mississippi River between Missouri Riv. & Minneapolis (NCD)	73,950,000	79,368,000	76,763,000	Repair lock and dam electrical and mechanical systems FY 90 & 91. FY 89, 90, & 91 include major rehabilitation at $24,653,000, $15,938,000, & $9,475,000, respectively; see justifications following this table.

NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (Cont'd)
    a. Locks, Dams and Canals (Cont'd)

OBLIGATIONS

Project	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
Minnesota				
Reservoirs at Headwaters of Mississippi River	2,414,000	2,527,000	1,745,000	Design bridge replacement, prepare drought contingency plan FY 89. Replace bridge FY 90.
New York				
Black Rock Channel & Tonawanda Harbor	645,000	1,225,000	3,122,000	Stabilize lockwall FY 90 & 91.
Wisconsin				
Fox River	1,360,000	1,199,000	1,187,000	Investigate archaeological resources, sample sediment, perform real estate surveys FY 89.
Other Projects Maintained Periodically	119,000	414,000		
Total-Locks, Dams & Canals	101,942,000	100,889,000	97,172,000	
TOTAL NAVIGATION	157,941,000	159,147,000	155,759,000	

NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control
   a. Reservoirs

The budget estimate of $13,080,000 for the operation and maintenance of 13 flood control reservoir projects within the division provides the amount for operation requirements. Annual requirements are for operation of project facilities; labor, supplies, material and parts required for the day-to-day functioning of projects. The requested amount also includes application of special recreation use fees for recreation areas.

OBLIGATIONS

Project	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
Illinois				
Farm Creek	152,000	145,000	255,000	Increase reservoir surveillance and law enforcement FY 91.
Iowa				
Coralville Lake	2,774,000	2,350,000	2,637,000	Repair spillway FY 89. Repair roads FY 91.
Red Rock Dam-Lake Red Rock	2,540,000	2,352,000	3,342,000	Repair dam foundation FY 91.
Saylorville Lake	4,528,000	3,365,000	3,237,000	Repair spillway FY 89.
Minnesota				
Lac qui Parle Lake	462,000	317,000	312,000	Perform periodic inspection, install data collection platforms, repair riprap FY 89.

NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)
   a. Reservoirs (Cont'd)

OBLIGATIONS

Project	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
Minnesota (Cont'd)				
Orwell Lake	429,000	353,000	324,000	Perform periodic inspection, install piezometer equipment, prepare dam spillway reconnaissance report FY 89.
Red Lake River	140,000	71,000	85,000	Paint dam gates, repair dam apron concrete FY 89. Perform periodic inspection, repair riprap, clear channel FY 91.
Minnesota & South Dakota				
Big Stone Lake-Whetstone River	197,000	172,000	160,000	Perform periodic inspection, evaluate reservoir operation FY 89.
Lake Traverse	331,000	264,000	219,000	Perform periodic inspection, evaluate reservoir operation FY 89. Inspect bridge, construct bulkhead FY 90.
New York				
Mt. Morris Lake	1,255,000	1,090,000	1,284,000	Repair elevator FY 89. Remove debris FY 91.

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NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)
   a. Reservoirs (Cont'd)

OBLIGATIONS

Project	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
North Dakota				
Homme Lake	78,000	100,000	100,000	Initiate periodic inspection FY 90. Complete periodic inspection, review reservoir storage FY 91.
Lake Ashtabula-Baldhill Dam	725,000	608,000	640,000	Install low flow gauges FY 89.
Wisconsin				
Eau Galle River Lake	597,000	511,000	485,000	Purchase/repair piezometer equipment FY 89. Install piezometers FY 90.
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Total-Reservoirs	14,208,000	11,696,000	13,080,000	

29 JAN 1990

NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)
   b. Channel Improvements, Inspections and Miscellaneous Maintenance

The budget estimate of $766,000 provides for the inspection of one shoreline protection structure, the annual maintenance requirements of one local flood protection project, minimum maintenance of one partially constructed flood control project and the inspection of completed flood control projects turned over to local interests to ensure adequate operation and maintenance.

OBLIGATIONS

Project	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
Indiana				
Beverly Shores	2,000	0	21,000	Inspect shoreline protection structure FY 91.
Michigan				
Sebewaing River	7,000	13,000	15,000	Variation in survey requirements.
Wisconsin				
LaFarge Lake	16,000	29,000	32,000	Perform normal real estate management FY 90 & 91.
Inspection of Completed Works	584,000	641,000	698,000	Variation in inspection requirements.

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NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)
   b. Channel Improvements, Inspections and Miscellaneous Maintenance (Cont'd)

OBLIGATIONS

Project	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
Inspection of Non-Federal Levees	43,000	0	0	Activity transferred to the Flood Control and Coastal Emergencies Appropriation in FY 89. FY 89 funds were carried over from FY 88.
Other Projects Maintained Periodically	114,000	238,000		
Total-Channel Improvements, Inspections and Miscellaneous Maintenance	766,000	921,000	766,000	
TOTAL FLOOD CONTROL	14,974,000	12,617,000	13,846,000	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

3. Multiple-Purpose Power Projects

The budget estimate of $12,717,000 for the operation and maintenance of the St. Marys Falls Canal, locks and power plant provides the amount for operational requirements. Annual requirements are for operation of project facilities; labor; supplies; materials and parts required for the day-to-day functioning of the project.

OBLIGATIONS

Project	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
Michigan				
St. Marys River	10,489,000	10,817,000	12,717,000	Repair southeast pier, study early opening of locks, install failure protection device for hydropower generator, replace elevator, perform dam failure study FY 91.
TOTAL MULTIPLE-PURPOSE POWER PROJECTS	10,489,000	10,817,000	12,717,000	

NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

4. Protection of Navigation

The budget estimate of $823,000 provides for project condition surveys for projects where maintenance is not scheduled in the budget year.

OBLIGATIONS

Project	Actual FY 1989 ($)	Estimated FY 1990 ($)	Estimated FY 1991 ($)	Explanation of Major Changes
Project Condition Surveys	607,000	619,000	823,000	Increased surveys FY 91.
TOTAL PROTECTION OF NAVIGATION	607,000	619,000	823,000	
GRAND TOTAL- NORTH CENTRAL DIVISION	184,011,000	183,200,000	183,145,000	

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29 JAN 1990

APPROPRIATION TITLE: Operation and Maintenance - Major Rehabilitation - Locks and Dams (Navigation)

PROJECT: Mississippi River between Missouri River and Minneapolis, Minnesota, Locks and Dams Nos. 3, 5A, 6, 7, 8, and 9, Minnesota, Wisconsin and Iowa (Continuing)

LOCATION: Locks and Dams 3 and 5A through 9 are located on the Mississippi River between river miles 797 and 648 and approximately between Red Wing, Minnesota and Prairie du Chien, Wisconsin.

DESCRIPTION: The original structures were placed in operation between 1936 to 1938. Each lock and dam consists of a lock (standard dimensions of 600 ft. long by 110 ft. wide), an uncompleted auxiliary lock, a dam consisting of movable gates to control river elevation, an earth embankment, and an ungated overflow spillway. Work items under the major rehabilitation program are the replacement and/or refurbishing of the mechanical and electrical systems. This includes the machinery and control systems that operate the lock gates, the valves that control the level of water in the lock, and the movable gates of the dam.

AUTHORIZATION: River and Harbor Act of 1930.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio is not applicable because monetary benefits have not been quantified.

TOTAL BENEFIT-COST RATIO: The total benefit-cost ratio is not applicable because monetary benefits have not been quantified.

INITIAL BENEFIT-COST RATIO: The initial benefit-cost ratio is not applicable because monetary benefits have not been quantified.

BASIS OF BENEFIT-COST RATIO: The basis for the benefit-cost ratio is not applicable because monetary benefits have not been quantified.

SUMMARIZED FINANCIAL DATA		Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost	$45,700,000	
Estimated Non-Federal Cost	0	
Total Estimated Project Cost	$45,700,000	

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
ENTIRE PROJECT	17	Sep 2000

DIVISION: North Central DISTRICT: St. Paul

Mississippi River between Missouri River and Minneapolis, Minnesota, Locks and Dams Nos. 3, 5A, 6, 7, 8 and 9, Minnesota, Wisconsin and Iowa

SUMMARIZED FINANCIAL DATA (Continued)

Allocations to 30 September 1989	6,557,000	
Conference Allowance for FY 1990	2,068,000	
Allocation for FY 1990	2,068,000	
Allocations through FY 1990	8,625,000	19
Allocation Requested for FY 1991	3,200,000	26
Scheduled Balance to Complete after FY 1991	33,875,000	
Unscheduled Balance to Complete after FY 1991	0	

PHYSICAL DATA

DAMS:	
Replace electrical systems	6 each
Replace/refurbish gate chains	29 each
LOCKS:	
Replace miter gate machinery	24 each
Replace tainter valve machinery	24 each
Replace electrical systems	6 each

JUSTIFICATION: The mechanical and electrical systems of the locks and dams have reached or exceeded their useful life of 50 years. Breakdown of the electrical and mechanical equipment will become increasingly more frequent. Many of the mechanical components are custom made and a malfunction of any of the parts could shut down a lock for extended periods of time while replacement parts are being manufactured. A major failure of the mechanical system could close operation of the lock for 2 to 3 months. Frequent minor breakdowns which will close the lock for 2 to 3 days at a time are anticipated.

Annual Benefits	Amount (1 October 1989)
Navigation	$12,499,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue: Lock Work, electrical systems improvements	$1,535,000
Dam Work, bulkhead hoist system, electrical system and gate chains improvements	1,271,000
Planning, Engineering and Design	217,000
Construction Management	177,000
Total	$3,200,000

DIVISION: North Central DISTRICT: St. Paul Mississippi River between Missouri River and Minneapolis, Minnesota, Locks and Dams Nos. 3, 5A, 6, 7, 8 and 9, Minnesota, Wisconsin and Iowa

29 JAN 1990

NON-FEDERAL COST: There are no non-Federal costs.

STATUS OF LOCAL COOPERATION: Local cooperation is not required since the locks and dams are located on government owned property.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $45,700,000 is an increase of $8,000,000 over the latest estimate presented to Congress. This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$-1,151,000
Design Changes	+7,818,000
Post Contract Award and Other Estimating Adjustments	+1,333,000
Total	$+8,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement (EIS) was filed with EPA on 11 August 1987. The Finding of No Significant Impact was signed in August 1987. This completed the National Environmental Policy Act documentation on all rehabilitation action other than the bubbler systems. The cumulative impacts of the bubbler systems were covered by a Rock Island District EIS signed in July 1989.

OTHER INFORMATION: Initial funds for reconnaissance and engineering and design studies were obtained in FY 1984 through 1986 under the Operation and Maintenance, General appropriation. Structural and embankment rehabilitation work at locks and dams 3, 5A, 6, 7, 8, and 9 is being accomplished under the Operation and Maintenance, General appropriation for the Mississippi River project. All rehabilitation work at locks and dams 2, 4, 5, and 10 is also being accomplished under the Operation and Maintenance, General appropriation for the Mississippi River project.

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APPROPRIATION TITLE: Operations and Maintenance, General - Major Rehabilitation - Locks and Dams (Navigation)

PROJECT: Mississippi River between Missouri River and Minneapolis, Minnesota - Lock and Dam No. 20, Missouri (Continuing)

LOCATION: The project is located at Mississippi River Mile 343.2, just upstream of Canton, in Monticello County, Missouri. The facility is a unit of the Inland Waterway Navigation System of the Upper Mississippi River Basin and is one of 29 such facilities between Minneapolis, Minnesota, and St. Louis, Missouri.

DESCRIPTION: The lock chamber is 600 feet long by 110 feet wide. A 360-foot by 110-foot auxiliary lock, only partially constructed, is located adjacent to the main lock. The dam is 2,294 feet long and consists of a roller gate section with 3 gates and a tainter gate section with 40 gates. Lock tonnage was 34,892,000 tons in 1988 with major commodities being bituminous coal, petroleum products, and grain. There were a total of 6,151 lockages, including 398 for pleasure craft.

Significant features of the proposed work include resurfacing deteriorated concrete areas on the lock walls and dam piers; overhauling and painting the main and auxiliary lock miter gates; replacing lock gate operating machinery; replacing the lock valve machinery and painting the tainter valves; replacing the electrical equipment; rehabilitation of the lock central control station; cleaning and painting the dam roller gates; replacing seals, repairing structural members, and painting the dam tainter gates; replacing service bridge bearings; modification of the overhead crane to provide an improved mechanism for bulkhead placement; and painting the bridge; placing additional rock fill and riprap for increased scour protection downstream of the dam structure; installing individual gate operating machinery on 38 tainter gates and constructing a guard cell downstream of the intermediate lock wall.

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AUTHORIZATION: River and Harbor Act of 1930.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio is not applicable because monetary benefits have not been quantified.

TOTAL BENEFIT-COST RATIO: The total benefit-cost ratio is not applicable because monetary benefits have not been quantified.

INITIAL BENEFIT-COST RATIO: The initial benefit-cost ratio is not applicable because monetary benefits have not been quantified.

BASIS OF BENEFIT-COST RATIO: The basis for the benefit-cost ratio is not applicable because monetary benefits have not been quantified.

SUMMARIZED FINANCIAL DATA		Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost	$39,000,000	
Estimated Non-Federal Cost	0	
Total Estimated Project Cost	$39,000,000	
Allocations to 30 September 1989	21,980,000	
Conference Allowance for FY 1990	12,700,000	
Allocation for FY 1990	10,745,000 1/	
Allocation through FY 90	32,725,000	84
Allocation Requested for FY 1991	6,275,000	100
Scheduled Balance to Complete after FY 1991	0	
Unscheduled Balance to Complete after FY 1991	0	

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULED
Entire Project	60	Sep 1991

1/ Reflects 674,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $1,281,000 reprogrammed from the project.

JUSTIFICATION: Many features of the facility are in an advanced state of deterioration. Operation of the tainter gates with the traveling hoist is costly and a safety hazard. The vertical monolith joints in the lock walls are deteriorated and badly abraded as a result of barges scraping the walls. Protection angles at 3 of the 6 ladder recesses and all the miter gate corners have been stripped off by barges. Concrete in the upper portion of the tainter gate piers is in very poor condition. The main lock miter gate machinery, the lock valve machinery and electrical equipment is in poor condition due to over 52 years of use. The central control house requires modification to prevent damage to mechanical/electrical systems and hazards to personnel during periods of high water. The dam overhead crane requires modification to provide an improved mechanism for emergency bulkhead placement similar to other sites on the Mississippi River system. The existing hoist car lifting system is labor intensive and is hazardous to operate. Structural steel components consisting of lock gates, lock tainter valves, the service bridge across the dam, and the dam roller and tainter gates are in varying degrees of disrepair. Scour holes also exist downstream of the dam. Rehabilitation is essential to extend the useful life of this lock and dam. Delaying the work will risk interruption to navigation due to frequent shutdowns for major repairs and will result in increased total maintenance cost to the Government.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Complete: Stage III, Dam Rehabilitation	$ 5,402,000
Complete: Stage IV, Control Station Rehabilitation	330,000
Planning, Engineering and Design	98,000
Construction Management	215,000
TOTAL	$ 6,275,000

NON-FEDERAL COST: None required.

STATUS OF LOCAL COOPERATION: None required.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $39,000,000 is an increase of $600,000 from the latest estimate ($38,400,000) presented to Congress (FY 1990). The change is due to the following:

Item	
Price Escalation	$ +59,000
Post Contract Awards and other Estimating	+541,000
Total	$ 600,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment was prepared and distributed to the public for the proposed rehabilitation work. The District Commander signed a Finding of No Significant Impact on 11 July 1986. In addition to the site specific Environmental Assessment prepared for this rehabilitation effort, the Rock Island District prepared an Environmental Impact Statement (EIS) to assess whether certain measures have the potential to increase navigation traffic and possibly cause cumulative impacts to the Upper Mississippi River System. The Draft EIS was distributed for public review in October 1988. The Final EIS was distributed for public review on 23 March 1989 and the Record of Decision was signed on 28 July 1989.

Mr. **Bevill**. I am going to submit my questions for you to answer on the record.

General **Patin**. Thank you, Mr. Chairman, we will do that.

[The information follows:]

ADDITIONAL QUESTIONS SUBMITTED BY CONGRESSMAN BEVILL

ILLINOIS WATERWAY NAVIGATION STUDY

Mr. BEVILL. Please provide the Committee with a copy of the "Status of Inland Waterways" report referenced in the description of the Illinois Waterway Navigation study.

General PATIN. Yes sir, the report was prepared for our headquarters office in Washington, DC by the Institute for Water Resources. I will supply a copy of the report for the Committee.

DES PLAINES RIVER, ILLINOIS

Mr. BEVILL. Why has the completion date for the Des Plaines River, Illinois study slipped two years and why has the cost of the feasibility study increased by $700,000?

General PATIN. The initiation of the feasibility phase has been delayed six months due to the complexity in negotiating the scope of work for the Feasibility Cost Sharing Agreement with the local study sponsor. The additional 18 months delay and increased costs are due to expanding the scope of the feasibility phase to include two additional tributaries, aerial mapping of the Des Plaines River floodplain, and additional hydrologic and hydraulic studies, at the request of the local sponsor.

STUDY TERMINATIONS

Mr. BEVILL. Why are no funds being requested to continue the South Fork, Sangamon River, Illinois, study, the St. Joseph River Basin, Indiana, study, and the Southern Wayne County, Michigan, study?

General PATIN. Mr. Chairman, while the basic problems for each of these areas differ significantly, they all have one thing in common; we could not develop any flood control alternatives with a Federal interest that were economically justified. Therefore, all three studies will be terminated.

CROOKSTON, MINNESOTA

Mr. BEVILL. Why has the completion date for the reconnaissance phase of the Crookston, Minnesota, study slipped from March 1990 to January 1991?

General PATIN. Mr. Bevill, the previous schedule did not allow any time for negotiating a Feasibility Cost Sharing Agreement or for review and certification by higher authority. In addition, funding for initiation of the reconnaissance phase was delayed from April 1989 to July 1989 because the people scheduled to work on this study were committed to other activities for longer than originally anticipated. These two factors caused the 10-month slippage. The reconnaissance report is scheduled for completion in July 1990.

RAINY RIVER BASIN, MINNESOTA

Mr. BEVILL. What is the status of the Rainy River Basin, Minnesota, study?

General PATIN. Mr. Chairman, the "Draft" reconnaissance report was completed by the District in January 1990. The report recommends no further study because of a lack of economic justification. A copy of the report is being furnished to the International Joint Commission through the Rainy Lake Board of Control.

MOOSE AND BLACK RIVERS, NEW YORK AND VERMILION RIVER, OHIO

Mr. BEVILL. Have the cost sharing problems for the Moose and Black Rivers, New York, and Vermilion, Ohio, studies been resolved?

General PATIN. No, Sir, I am sorry to report that these problems have not been resolved. In the case of the Moose and Black River study, the local sponsor, the New York State Department of Environmental Conservation, indicated that, for a variety of reasons, including severe fiscal problems, they could not execute a Feasibility Cost Sharing Agreement in the foreseeable future. Therefore, the study has been terminated. At Vermilion, Ohio, the Vermilion Port Authority has agreed to be the local sponsor in lieu of the city; however, its financial position is not much better. The Port Authority has committed $30,000 for the first stage of the feasibility study, but they can make no further commitment for future funding, at this time. Therefore, in both cases, the Feasibility Reports will not proceed until the respective issues are resolved.

LA CROSSE, WISCONSIN

Mr. BEVILL. Why are no funds requested to continue the La Crosse, Wisconsin, Study?

General PATIN. Mr. Chairman, the reconnaissance phase report, completed in November 1989, found no economically justified plan. However, the State Department of Transportation is currently conducting a highway study scheduled for completion in 1992. If properly located and designed, the proposed highway could be used as part of a flood control project, reducing the cost, and resulting in an economically feasible plan. I will, therefore, maintain an open study authority until the state highway study is completed.

WAHPETON, NORTH DAKOTA
BRECKENRIDGE, MINNESOTA

Mr. BEVILL. Why has the completion date for the Wahpeton, North Dakota-Breckenridge, Minnesota, study slipped one year?

General PATIN. Sir, the previous schedule did not allow any time for negotiating a Feasibility Cost Sharing Agreement or for review and certification by higher authority. In addition, funding for initiation of the reconnaissance phase was delayed from December 1988 to March 1989 because the people scheduled to work on this study were committed to other activities for longer than originally anticipated.

GREAT LAKES CONNECTING CHANNELS AND HARBORS

Mr. BEVILL. Why has the cost of Preconstruction, Engineering and Design for the Great Lakes Connecting Channels and Harbors project increased from $390,000 to $650,000?

General PATIN. Mr. Chairman, the Preconstruction, Engineering and Design cost increase of $260,000 is primarily due to additional environmental design and coordination required for the creation of an island in Izaak Walton Bay for dredged material disposal. This island will provide habitat enhancement for a Federally endangered species called the Piping Plover.

Mr. BEVILL. Is this project authorized for construction?

General PATIN. No sir, project construction has not yet been authorized by Congress.

MONROE HARBOR, MICHIGAN

Mr. BEVILL. The currently proposed project for Monroe Harbor, Michigan, has a much smaller scope than the authorized project. Are local interests in agreement with the current proposal? Will the project need to be reauthorized? Please describe the currently proposed project.

General PATIN. Mr. Chairman, sponsorship for the Monroe Harbor project has not been firmly established. Coordination with the Port of Monroe, Michigan to determine its willingness to sponsor the project is currently underway. The Port of Monroe supports the current plan. The current project plan provides for deepening the River Raisin portion of the channel to 25 feet and maintaining the existing 200 foot channel width. The Lake Erie portion of the channel will be extended and deepened to 26 feet and maintained at 300 feet wide. The project will not require reauthorization.

FORT WAYNE, INDIANA

Mr. BEVILL. Why has the cost of Preconstruction Engineering and Design for the Fort Wayne Metropolitan Area, Indiana, project increased from $900,000 to $2,400,000?

General PATIN. Sir, the increase of $1,500,000 from $900,000 to $2,400,000 is due mainly to the fact that the required design efforts are far more complex than originally considered in the Feasibility Study. The project will be constructed in a highly developed urban area with existing flood control structures and a constrained right-of-way. Some of the original assumptions concerning the availability of adequate right-of-way, the integrity of existing river banks, and the structural integrity of existing structures proposed to be modified were incorrect. Instead of a common design for the levees and floodwalls, we will develop about 31 different site specific designs.

LAKE GEORGE, INDIANA

Mr. BEVILL. What is the status of PED for the Lake George, Hobart, Indiana project?

General PATIN. Work on the Planning and Engineering report is currently underway, sir, and will be 50 percent complete by the end of this fiscal year.

Mr. BEVILL. Why have no funds been requested to continue this effort in Fiscal Year 1991?

General PATIN. Mr. Bevill, funds to continue the study were not included in the President's Budget because the project outputs, lake restoration for environmental enhancement and recreational purposes, are low national priorities and are not in accordance with Administration policy.

GREAT LAKES-ST. LAWRENCE SEAWAY ALTERNATIVE FINANCING STUDY

Mr. BEVILL. What is the status of the Saint Lawrence Seaway and Great Lakes Financing Navigation Improvements study?

General PATIN. Mr. Chairman, the authorizing language for the study, Section 47(d) of the Water Resources Development Act of 1988, directed that a contract with an independent party shall be let to conduct a study of cost recovery options and alternative methods of financing navigational improvements on the Great Lakes Connecting Channels and the St. Lawrence Seaway, including modernization of the Eisenhower and Snell Locks of the St. Lawrence Seaway. Funds in the amount of $107,000 have been provided to conduct this study and the contractor selection process is underway. The contract is scheduled to be awarded in March 1990, and the final contractor report is scheduled to be completed in October 1990.

SHEYENNE RIVER, NORTH DAKOTA

Mr. BEVILL. Has the Local Cooperation Agreement for the Horace Unit of the Sheyenne River, North Dakota, project been signed?

General PATIN. Mr. Chairman, the Local Cooperation Agreement for the Horace Unit of the Sheyenne River, North Dakota, project was signed by the local sponsor, the Southeast Cass Water Resources District, on 20 February 1990. The Local Cooperation Agreement has been forwarded to the Assistant Secretary of the Army for Civil Works for signature.

UPPER MISSISSIPPI RIVER SYSTEM ENVIRONMENTAL MANAGEMENT PROGRAM

Mr. BEVILL. What is the status of the Spring Lake, Illinois, feature of the Upper Mississippi River System Environmental Management Program?

General PATIN. Mr. Chairman, the project is currently being funded for general design. We will soon coordinate with our Washington office to combine two project sites which were originally submitted by the U.S. Fish and Wildlife Service into one comprehensive project. Construction of this project is currently scheduled to be awarded in September 1993 and completion is scheduled in September 1996.

BASSETT CREEK, MINNESOTA

Mr. BEVILL. Why has the completion date for the Bassett Creek, Minnesota, project slipped one year?

General PATIN. Mr. Chairman, the completion date for the Bassett Creek project has slipped from September 1991 to September 1992 as a result of a request by the local sponsor, the City of Minneapolis, Minnesota, to reduce costs and to minimize the adverse effects of project implementation for Stage 2C. Work by the Minnesota Department of Transportation on Highway 100 will be integrated with the Stage 2C flood control project. The sponsor has requested that several design features be reevaluated. The additional time will be required to coordinate changes with the sponsor.

ROCHESTER, MINNESOTA

Mr. BEVILL. Please elaborate on the statement in the justification material for the Rochester, Minnesota, project relating to projected increases in project cost.

General PATIN. Mr. Chairman, the detailed engineering and design has resulted in a more accurate determination of quantities of concrete and the addition of construction cost items that were not included in the earlier cost estimate. Also, the latest estimate provides for an increase in construction and design contingency allowances based on the risk and uncertainty of each item of the cost estimate. The latest estimate exceeds the limit established in Section 902 of the Water Resources Development Act of 1986. A Post Authorization Change request will be prepared following completion of the last of four remaining Feature Design Memoranda in December 1990.

Mr. BEVILL. Please describe "architecturally - treated concrete channels", which are a feature of the Rochester, Minnesota, project.

General PATIN. Mr. Bevill, we work with the communities to improve the appearance of concrete structures. This is especially important in urban areas. We try to improve the appearance of concrete floodwalls by making them more aesthetically pleasing. This is accomplished by using textured concrete and special concrete forms at a minimum of extra cost. We have used this technique at several urban flood control projects within the North Central Division and the project sponsors have been very pleased. Due to this success and the well-accepted architectural renderings on other Corps projects, we plan to apply these techniques on the Rochester project.

STATE ROAD AND EBNER COULEES, WISCONSIN

Mr. BEVILL. Why has the completion date for the State Road and Ebner Coulees, Wisconsin, project slipped one year?

General PATIN. Mr. Chairman, the completion date for the State Road and Ebner Coulees project has slipped from September 1992 to September 1993. The one year extension results from a request by the local sponsor, the City of La Crosse, Wisconsin, to extend project completion to ease the financial impact of the project on city resources. The revised schedule staggers construction contract award for Stages 2 and 3 thus avoiding two concurrent contracts requiring large cash withdrawals from the escrow account.

SOURIS RIVER BASIN, NORTH DAKOTA

Mr. BEVILL. The justification material indicates that $29,837,000 is being reprogrammed to the Souris River Basin, North Dakota, project in FY 1990. How will those funds be utilized?

General PATIN. Mr. Bevill, reprogrammed funds in the amount of $29,837,000 along with $10,220,000 appropriated for FY 90, offset by savings and slippage and Gramm-Rudman-Hollings reductions of $1,091,000, will be used to initiate construction of Stages 1, 2, and 3 of the Burlington to Minot improvements, $910,000; construct refuge facilities, $1,000,000; construct Stages 1 and 2 of the rural improvements, $363,000; construct Sawyer improvements, $733,000; make payment to Saskatchewan for construction of flood storage space at Alameda and Rafferty dams, $33,843,000; continue Planning, Engineering, and Design, $1,727,000; and for construction management, $390,000.

MISSISSIPPI RIVER LOCK AND DAM 3, 5A-9

Mr. BEVILL. Please describe the design changes that caused the cost of the rehabilitation of Locks and Dams 3, 5A - 9 to increase $7,800,000.

General PATIN. Mr. Chairman, the design changes on this major rehabilitation project result from additional requirements for mechanical and electrical systems, including a new conduit and raceway system for power, control and lighting cables, estimated at $5,514,000; additional machinery supply requirements, including sector gear braces and crowning of pinion gear teeth, estimated at $204,000; and machinery installation requirements for sector gear braces and modifications to pinions and machinery bases, estimated at $2,100,000.

CUYAHOGA RIVER, OHIO

Mr. BEVILL. Are you proceeding with the reconnaissance study of the Upper Cuyahoga River as directed in House Report 101-96?

General PATIN. Yes, Mr. Chairman, $150,000 is being used to initiate the reconnaissance phase of the Cuyahoga River Study.

BUFFALO SMALL BOAT HARBOR, NEW YORK

Mr. BEVILL. What is the status of the Buffalo Small Boat Harbor, New York, project?

General PATIN. Mr. Chairman, funds provided in FY 1990 to make repairs to the existing 1,900 foot long breakwater that protects the Buffalo Small Boat Harbor will be used to complete all environmental coordination, initiate and complete the plans and specifications, and prepare the Local Cooperation Agreement. The construction award is scheduled for May 1991. Construction is scheduled to be completed in September 1991.

KANKAKEE RIVER PROJECT AT WILMINGTON, ILLINOIS

Mr. BEVILL. Has the icebreaking equipment to be loaned to the City of Wilmington, Illinois, for use on the Kankakee River project been acquired?

General PATIN. No, sir. Based on discussions between the Chicago District Engineer and the Mayor of Wilmington, Illinois, it was determined and agreed that an icebreaker would not be required. The intent of the icebreaker was to break up frazzil ice build-up between the I-55 bridge and the mouth of the Kankakee River. The River Ice Management project, currently in place, will provide the same solution as an icebreaker and cost significantly less over the life of the project. The River Ice Management project uses cooling water discharged from the Dresden Island power plant to melt frazzil ice and reduce ice build-up.

MAUMEE BAY STATE PARK, OHIO

Mr. BEVILL. Is the Maumee Bay State Park, Ohio, project proceeding as directed in Public Law 101-101?

General PATIN. Yes sir, Mr. Chairman. We are proceeding with this project. The General Design Memorandum was approved on February 8, 1989 and Plans and Specifications were approved on September 8, 1989. We are maintaining coordination with the local sponsor. In FY 1990, we will execute the Local Cooperation Agreement, acquire the necessary lands, advertise and award the construction contract and initiate construction.

ROSEAU RIVER, DUXBY LEVEE, MINNESOTA

Mr. BEVILL. What is the status of the Roseau River, Duxby Levee, Minnesota, project?

General PATIN. Mr. Chairman, the Duxby Levee portion of the Roseau River project is now underway with detailed design studies. Plans and specifications are scheduled for completion in July 1990 and we are scheduling construction contract award in September 1990.

WATERLOO, IOWA

Mr. BEVILL. Are you proceeding with design and construction of the Waterloo Bridges in Waterloo, Iowa, as directed by Public Law 101-101?

General PATIN. Yes sir, we are proceeding with the project. The Plans and Specifications are now in the final stages. The Local Cooperation Agreement is scheduled to be executed in April 1990 and the construction contract is scheduled to be awarded in June 1990.

ASHTABULA HARBOR, OHIO

Mr. BEVILL. The Fiscal Year 1990 Energy and Water Development Appropriations Act included $300,000 to address critical shoaling in the Ashtabula River upstream of the 5th Street Bridge. Is that work proceeding?

General PATIN. Yes, sir. Work continues on the Reformulation and Economic Analysis Report, which is scheduled to be completed in July 1990. In addition, an extensive sediment sampling and testing program is being conducted to determine the location and level of toxics in the upper Ashtabula River sediments. Preliminary test results are expected by April 1990. If no potentially hazardous or toxic conditions are found in the Federal navigation channel, several steps must be taken to comply with the National Environmental Policy Act requirements before a dredging contract could be awarded. These steps include preparation of an Environmental Assessment which will require a 90 day review period, preparation of plans and specifications and signing of the Finding of No Significant Impact Statement. The Notice to Proceed for dredging could not be issued to a contractor before 30 November 1990 because of the necessary coordination time. If toxic conditions are found, we will need to defer dredging to reassess costs and pursue further coordination with EPA on required clean-up of toxic materials which extend outside the authorized Federal channel since this is EPA's responsibility.

SAUK LAKE, MINNESOTA

Mr. BEVILL. What is the status of the Sauk Lake, Minnesota, project?

General PATIN. A final report is scheduled for completion in June, 1990. It will evaluate alternatives which address Sauk Lake's aquatic growth and algae problems, and will identify a plan of action.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT (Continued)

With respect to Lock and Dam 20, completion of the EIS provides National Environmental Policy Act clearance for construction of the Vertical Lift Gate, Upper Guidewall Extension, and High Volume Bubbler System. These items were identified in the General Design Memorandum, but have been deleted from the project schedule and cost estimate.

Rehabilitation of the Control Station must be coordinated with the Missouri State Historic Preservation Officer to determine an acceptable treatment pursuant to the Programmatic Memorandum of Agreement executed for the rehabilitation program.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1986.

LAKE GEORGE, INDIANA

Mr. BEVILL. Are you proceeding with the Lake George Hobart, Indiana project as directed in the FY 1990 Energy and Water Development Appropriations Act?

General PATIN. Yes, Mr. Chairman, we are proceeding as directed.

Mr. BEVILL. I also have some questions from Congressman Oberstar that I am going to submit for you to answer on the record.

General PATIN. Yes, sir, we will be glad to answer them.

[The information follows:]

QUESTIONS SUBMITTED BY CONGRESSMAN OBERSTAR—DULUTH-SUPERIOR HARBOR, MINNESOTA AND WISCONSIN

Question. What is the status of the Duluth-Superior channel deepening and widening project?

Answer. Sir, the General Design memorandum was initiated in 1987 and is scheduled for completion in April 1990. The Plans and Specifications for channel widening at Arrowhead Bridge will be completed in August 1990.

Question. What is your current capability for the Duluth-Superior Harbor project?

Answer. Subject to the usual qualifications, the current capability for FY 1991 is $1,000,000.

Question. If funds were made available, could construction on the Duluth-Superior Harbor start in FY 1991?

Answer. If $1,000,000 were made available in FY 1991, channel widening at Arrowhead Bridge could be advertised as early as February 1991, and awarded in March 1991. Construction could start in April 1991.

Mr. BEVILL. Other members of this committee may also be submitting questions. I understand that Congressman Pursell, who I would recognize nex , is yielding to Chairman Sid Yates. We are delighted to have him with us.

So, Chairman Yates, we are pleased to have you with us, and you may proceed as you wish with your questions.

Mr. YATES. Thank you, Mr. Chairman.

I want to thank my good friend, Carl Pursell, for letting me go first.

General, it is a pleasure to see you again, accompanied by your able assistants, Bing Chin and others. Bing Chin and I have been friends for 40 years and work well together. I hope you and I can establish the same kind of relationship, General.

CHICAGOLAND UNDERFLOW PLAN, ILLINOIS

General, let me speak frankly. I am deeply disappointed to notice that in the Corps' Fiscal Year 1991 request, there was no funding for either the O'Hare Reservoir feature of the Chicago Underflow Project, CUP, or the McCook and Thornton Reservoirs, also part of the CUP. Neither are new. Both are fully authorized for construction.

The Corps, after a number of studies, found that they had an established Federal interest. The projects have a strong local sponsor, who is committed to full cost-sharing, and both projects enjoy widespread support in the Illinois Congressional delegation.

Besides the disappointment I have expressed, the sponsor, the Metropolitan Water Reclamation District of Greater Chicago, and I cannot understand what the Corps' real plans are for these projects.

We find that your recently-released Phase 2 GDM and your EIS dated July 19, 1989 for the O'Hare Project, which has been forwarded to the sponsor for comment, include a detailed schedule for the construction of the plan. It clearly identifies that the Corps anticipates spending a total of $5.6 million for the second year of construction for the project in Fiscal Year 1991, despite the fact the

Corps budgeted no money for O'Hare Reservoir in Fiscal Year 1991.

You are going forward with expenditures for Fiscal Year 1990, are you not?

General PATIN. Yes, sir, we are.

Mr. YATES. And those are moving well along?

General PATIN. Yes, sir.

Mr. YATES. When I say I can't understand it, I know that your reply will be, "Well, Mr. Congressman, OMB just struck it off the budget." Isn't that correct?

General PATIN. Yes, sir.

Mr. YATES. That is right. Well, as it happens, these two flood control projects are absolutely critical to the health and safety of the citizens of 52 communities in the Chicago area. 500,000 homeowners in the greater Chicago area will continue to live at risk due to the devastation of flooding if OMB's arbitrary action is sustained.

Once constructed and in place, these two projects will relieve $140 million in average annual damages which stem from the ravages of flooding. The local sponsor for the two projects stands ready, able and willing to commit over $100 million in local dollars for these projects in full accord with the cost-sharing principles established in the Water Resources Development Act of 1986.

We went through the same fight last year. OMB refused to approve last year's appropriation for McCook-Thornton and for the O'Hare Reservoir. They weren't in the budget in spite of the findings of the Corps that the projects were in the national interest. This committee and the Congress overruled OMB and it found that the project was in the national interest. It approved the appropriation of $2.3 million to move ahead on both of the reservoir projects.

So, I would like to say that it is time that the Congress made clear to OMB that the Congress has the constitutional authority to decide which projects are in the national interest and should be approved and should be funded, not OMB.

OMB does not have the right or the power, nor should it be given such power, to overrule the Congress. In my opinion, OMB is power-mad. It is trying to exceed the limited power that it has within the President's constitutional authority.

The President, last year, signed the Energy and Water Appropriations bill for Fiscal Year 1990 into law. The President thereby approved this project. I note from a report in the press last week that the Supreme Court took steps to curb OMB's grasping for additional power.

I read from The Washington Post for, I think, last Thursday—it says, "The Supreme Court ruled yesterday that OMB can no longer block regulations requiring companies to provide health, safety and other consumer information to workers or the public on the grounds exposures require excessive paperwork."

The ruling takes away a powerful weapon that OMB has used during the last decade to expand its power over the Federal Government's rule-making. If the Supreme Court has taken that step to curb OMB, I think it is time that the Congress does the same, and I would hope that this committee and the Congress find again that funding for these projects continues to be in the national interest.

General, if the committee and the Congress do approve an appropriation, is the Corps in a position to continue to move on these projects?

General PATIN. Yes, sir. We are in a position to continue to move on the projects. However, the Administration's review of these projects have identified economic and/or policy concerns. The Administration does not support these projects and views the problems as urban drainage.

Mr. YATES. The projects are going forward at the pace established by the Congress and by the schedule established by the Corps?

General PATIN. That is correct, sir.

Mr. YATES. These funds, the capability funds, if voted by the committee and by the Congress, will permit that to continue to proceed.

General PATIN. Yes, sir. Subject to the usual qualifications, the FY 1991 funding capability for O'Hare Reservoir is $4.3 million for construction and is $2.0 million for McCook-Thornton Reservoirs for PED.

Mr. YATES. Okay.

ILLINOIS SHORELINE EROSION STUDY, ILLINOIS

Let me now turn to one other appropriation which OMB has not seen fit to fund this year. That is for the study which the Corps has been making of the erosion of Chicago's and Illinois' shoreline. That study has been going forward as well, has it not, General?

General PATIN. Yes, sir, it has.

Mr. YATES. And the purpose of that study is an important one, is it not?

General PATIN. Yes, sir.

Mr. YATES. It has been found to be in the national interest as well, is that correct?

General PATIN. Some of the aspects of it are at this time questionable as to whether we have a Federal interest, but we are moving on those.

Mr. YATES. How much money would you need to continue that study, General?

General PATIN. We would need $300,000 to complete the feasibility phase of that study. There are four parts to that study.

Mr. YATES. How many parts of that study have been completed?

General PATIN. One part sir, at Casino Beach, Interim II.

Mr. YATES. One part has been completed.

General PATIN. Yes, sir, that is correct.

Mr. YATES. Are you in a position to proceed with continuing that study if the Congress approves that appropriation?

General PATIN. Yes, sir, we would continue and complete the study.

Mr. YATES. I don't have any more questions at this time. General, is there anything you would like to say to me on either of the projects that I have asked about?

General PATIN. No, sir.

Mr. YATES. General, I thank you very much for coming here and for the work that you have been doing on these projects, and what your predecessors have done. I think you have been doing a wonderful job in moving forward on these very essential projects, not only for my district, but for the whole Chicagoland area.

These projects will relieve an enormous burden upon Chicago and upon the suburban community. They have been found to be in the national interest, and it has been found that there is a Federal interest. I would hope and would expect and would ask this Committee and the Congress to continue to fund the projects.

Thank you very much. Thank you, Mr. Chairman.

Mr. **Bevill.** Yes, sir. We are always pleased to have our most distinguished chairman in the Congress appear with this panel.

Mr. **Yates.** Well, I thank the Chairman. I share that.

Mr. **Bevill.** The Chair now recognizes Mr. Pursell.

Mr. **Pursell.** Thank you, Mr. Chairman.

Congressman Sid Yates has been an outstanding Congressional chairman and also a great sponsor for the Chicago projects. Anything this Committee can do to help those projects along, I am certain will be good for Illinois and the Nation as well.

Mr. **Yates.** Thank you very much. I appreciate that.

ZEBRA MUSSEL PROBLEM IN THE GREAT LAKES

Mr. **Pursell.** Mr. Chairman, the Great Lakes are experiencing some devastating impacts from a little zebra mussel. It is infiltrating the Great Lakes through ballast in the hulls of ships that are coming from overseas. Some members of the Congressional delegations from the Northeast and Midwest, have asked for some study appropriations from other subcommittees, particularly Mr. Yates' Interior subcommittee, and also, I think, Neal Smith's Commerce, Justice, State subcommittee.

The mussel is spreading, particularly in Lake Erie, I believe, and also I think in Lake St. Clair. It is about the size of a pinto bean, as I understand it, and it is multiplying extremely rapidly.

Would you be involved in any of those studies? Have you been requested to participate in looking at the problem from a Corps' perspective?

General **Patin.** Yes, sir. We have been talking with the Fish and Wildlife Service. We also have a need and are very much interested in monitoring the impact that the zebra mussels would have on our lock and dam facilities in the Great Lakes area.

Mr. **Pursell.** Have you had any opportunity to focus on how you would participate in these studies in the event the Fish and Wildlife Service and others receive appropriations to begin work. Could you become part of that consortium upon request, or would you initiate an independent study?

General **Patin.** We would be very pleased to participate and to support any initiative that they would have.

Mr. **Pursell.** Who would be the lead agency? All the Northeast delegations have written letters to Chairman Smith of Commerce and to Chairman Yates of Interior. Where would you fit into the effort in terms of a lead agency? Who would be the lead agency?

General **Patin.** I would think that the initial thrust would be started by the Fish and Wildlife Service and we would be in support of their activities in this area.

Mr. **Pursell.** Have you had or planned meetings with those agencies? Do you intend to initiate any opportunities for some joint communications?

General **Patin.** We have talked to them about it, and we are planning to increase that dialogue. At this point, three of my districts are very much concerned, Buffalo and Detroit as well as the Chicago District.

Mr. **Pursell.** Right. It has the potential for spreading throughout the United States. From the report I saw, two-thirds of the country could be impacted by this particular problem. So, I appreciate your insight.

I am still not clear who the lead agency would be.

General **Patin.** The U.S. Fish and Wildlife Service would be the lead agency.

Mr. **Pursell.** Has that been determined by the various agencies that overlap in jurisdiction?

General **Patin.** We would need to formalize that position, but at this point, from my perspective, I would see my role as that of a supporter to any study that would be initiated by that agency.

Mr. **Pursell.** How quickly could that be formalized, based on your experience?

General **Patin.** I would not see a problem of formulating that at any time, provided the appropriate authority, as well as the appropriation, could be provided.

Mr. **Pursell.** Would that involve Canadian agencies as well?

General **Patin.** We would possibly have to involve them and get them involved in the coordination. In fact our Detroit District will meet with the Canadians at the end of this week.

Mr. **Pursell.** I think that would be appropriate, because it impacts on both nations.

General **Patin.** Yes, sir, it certainly does.

GREAT LAKES ENVIRONMENTAL ACTION PROGRAM

Mr. **Pursell.** Some Members of Congress, Congressman Nowak and myself particularly, are interested in a proposal called the "Great LEAP", in which you spell out in more detail your participation in environmental projects. What is your perspective on it at this time?

General **Patin.** The North Central Division is examining the role that the Corps may play in enhancing the environment in the Great Lakes Basin. The concept consists of a program with three parts, habitat enhancement, including wetlands creation, remediation of degraded areas, as well as resource monitoring and data management.

Mr. **Pursell.** Congressman Nowak is looking at introduction of legislation on that proposal. Have you had close communication with his office with respect to the timing of introduction of that legislation? Are you aware of any time sequence?

General **Patin.** Yes, sir. At the request of Congressman Henry Nowak of New York, as well as in support of your request, we have provided draft legislative language. I can provide a copy of that draft language for the record, if you so desire.

Mr. **Pursell**. I think the committee would appreciate that. But it does need authorization.

General **Patin**. Yes sir, I understand that. I have provided the draft language as a technical drafting service, and it does not imply an agency position, or support for, or a commitment by the Administration.

[The information follows:]

DRAFT LEGISLATION
GREAT LAKES ENVIRONMENTAL ACTION PROGRAM

To ensure the coordinated development and enhancement of the Great Lakes ecological system

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SEC 1. Short Title. This act may be cited as the "Great Lakes Environmental Resources Enhancement Act of 1990".

SEC 2. Findings. The Congress finds that--

(a) The Great Lakes natural ecological system is vital to the economic and social well-being of the nation;

(b) commercial, industrial, and agricultural development has seriously stressed the Great Lakes ecosystem; and

(c) the National interest would be served by--

(a) conserving, protecting, restoring, and enhancing the natural environment of the Great Lakes for the benefit of the people of the United States; and

(b) improving the coordination between all levels of government for resource management in the Great Lakes region.

SEC 3. Definitions. For purposes of this Act:

(a) The term "Great Lakes" means the United States portion of--

(1) Lake Erie, Lake Huron, Lake Michigan, Lake Ontario, and Lake Superior;

(2) their connecting and outflow waters, including the Saint Marys River, the Saint Clair River, Lake Saint Clair, the Detroit River, the Niagara River, and the Saint Lawrence River; and

(3) the drainage basins of subsections (1) and (2) of this section.

(b) The term "Great Lakes State" means each of the States of Illinois, Indiana, Michigan, Minnesota, Ohio, Pennsylvania, New York and Wisconsin.

(c) The term "fish and wildlife habitat" means the physical, chemical, and biological environment utilized during all or part of the life cycle of aquatic and terrestrial organisms.

(d) The term "restoration" means regaining the value of an environmental resource which has been lost or diminished.

(e) The term "enhancement" means a positive change in an environmental resource.

(f) The term "Secretary" means the Secretary of the Army.

SEC 4. Purpose. The purpose of this Act is to enhance the Great Lakes ecosystem by--

(a) complementing existing Federal environmental programs relating to the Great Lakes through habitat restoration projects (initiated by Federal and state fish and wildlife agencies);

(b) implementing activities in support of the bilateral Great Lakes Water Quality Agreement; and

(c) enhancing the monitoring of habitat features and the management and analysis of critical data relating to the Great Lakes ecosystem.

SEC 5. Great Lakes Environmental Action Program.

(a) The Secretary of the Army, in consultation with the Secretary of the Interior, the Administrator of the Environmental Protection Agency, the Under Secretary of Commerce for Oceans and Atmosphere, and the Great Lakes States, shall undertake the following activities in the Great Lakes:

(1) The planning, design, and construction of measures for fish and wildlife habitat enhancement, including but not limited to restoration of degraded habitat and creation of wetlands.

(2) Resource monitoring and data management, including but not limited to sediment testing, wetland and shoreline monitoring, evaluating measures constructed under subsection (a)(1) of this section, and developing a computerized data management and data analysis system.

(b) For the purposes of carrying out this section, including reasonable amounts for program management, there is authorized to be appropriated a total of $500,000,000 for the ten succeeding fiscal years following enactment of this Act.

(c) The Secretary, in consultation with the Secretary of the Interior, the Administrator of the Environmental Protection Agency, the Under Secretary of Commerce for Oceans and Atmosphere, and the Great Lakes States, shall evaluate the program established by this Act and submit a report to the Congress not later than six months before the end of the tenth fiscal year following enactment of this Act. Such report shall include recommendations for the modification and continuance or termination of the program.

(d) The cost of each activity implemented pursuant to subsection (a) of this section shall be allocated and cost shared between the Secretary and the appropriate non-Federal sponsor in accordance with the provisions of section 906(e) of the Water Resources Development Act of 1986 (Pub. L. 99-662).

CLEARING AND SNAGGING AUTHORITIES

Mr. **Pursell**. Do you need more authority in order to have the jurisdiction to participate with the Departments of Natural Resources of various States and other groups, such as county organizations, in the clearing and snagging of small rivers? Your Commander Glass of the Detroit District recommended snagging and clearing of the Middle Rouge River. I will submit some information on this for the record.

[The information follows:]

DEPARTMENT OF THE ARMY
DETROIT DISTRICT, CORPS OF ENGINEERS
BOX 1027
DETROIT, MICHIGAN 48231-1027

February 16, 1990

IN REPLY REFER TO

Planning Division
Environmental Analysis

Honorable Carl Pursell
House of Representatives
Washington, D.C. 20515

Dear Mr. Pursell:

In reference to your November 21, 1989 letter and our January 31, 1990 meeting, I am forwarding descriptions and cost estimates for snagging and clearing projects on the Lower and Middle Rouge Rivers.

The preliminary cost estimates are based upon other snagging and clearing projects which have been carried out in the region, and therefore are approximations. More detailed cost analyses would require inspection of the river reaches involved and extensive coordination with the Michigan Department of Natural Resources regarding appropriate fishery habitat improvements which could be incorporated into the projects. Wayne County has informed us that they are currently attempting to get one of the local television stations to videotape at least three sections of the Rouge River system from the air. Such a tape could allow for more accurate cost estimates to be developed without extensive field work.

I am enclosing information that may be helpful to your staff on existing Corps of Engineer authorities under two laws that provide flood control for small projects. They are Section 205 of 1948 Flood Control Act and Section 208 of the 1954 Flood Control Act. Projects under these direct authorities are cost shared on a 75 percent Federal and 25 percent non-Federal basis and are also subjected to a Federal cost limitation of $5,000,000 and $500,000, respectively. Information sheets on these two authorities are enclosed.

We are continuing to explore possible Corps involvement in other activities on the Rouge River. As I indicated in our meeting, I have met with Mr. Thomas Anderson, Chairman of the Rouge River Executive Steering Committee and a member of the Michigan Natural Resources Commission in an effort to identify potential ways in which the Corps could participate in cleanup of the Rouge River Basin. After discussion with other individuals active in resolving environmental problems in the basin, Mr. Anderson has given me an advance verbal notice to expect an invitation to a March 8, 1990 meeting of the Rouge River Executive Steering Committee to discuss our potential role in environmental issues in the basin. We look forward to the opportunity and I will advise you of any conclusions reached through this dialogue. In the interim, if I can be of any further assistance, please contact me.

Sincerely,

John D. Glass

John D. Glass
Colonel, U.S. Army
District Engineer

Enclosures

INFORMATION SHEET

CLEARING AND SNAGGING
LOWER ROUGE RIVER
WAYNE COUNTY, MICHIGAN

LOCATION: The Lower Rouge River, located in Wayne County, is the southern branch of the Rouge River. Most of the River flows through the Lower Rouge Parkway which is part of the Wayne County Park System. This Parkway is predominately undeveloped with a few small park areas available for public use throughout its length.

RESOURCE PROBLEM: The Lower Rouge River acts as a large storm drain for the surrounding communities, and large seasonal fluctuations in water depth are common. The entire length of the River experiences blockages from fallen trees and other debris. These blockages cause constricted water flow and flooding in many areas. Problems caused by these blockages also include bank erosion, lowered water quality (low dissolved oxygen) and generally poor habitat for desirable species.

PROPOSED PROJECT: The proposed project would be coordinated with the Michigan Department of Natural Resources and Wayne County to include development of and implementation of a comprehensive cleanup of the blockages in the Lower Rouge River. This plan would also include bank stabilization where necessary and shoreline maintenance such as removing dead and damaged trees. Some of the debris removed could be utilized in eroded areas of the river where re-alignment of the river course is necessary. The natural flow of the river would then fill in the debris with sediment and re-establish the original river course. Debris could also be utilized to construct deflectors that would enhance fish habitat.

PROJECT OUTPUTS: This project would produce a River that is free of blockages and erosion problems. The flow of the River would be increased and therefore water quality would be improved. This would also provide better plant and fish habitat in the River. The Lower Rouge River flows through one of the few greenbelts in Wayne County. In some areas the river is endangered by severe bank erosion. Bank stabilization would improve land values by stopping the continual loss of property. The completion of this project meets many of the goals listed in the Remedial Action Plan for the Rouge River Basin that has been adopted by the Southeastern Michigan Council of Governments.

FINANCIAL DATA: Based upon experience with other clearing and snagging projects in the midwest, a preliminary cost estimate of $1.0 to $2.0 million is considered reasonable for a clearing and snagging project on the Lower Rouge River.

INFORMATION SHEET

CLEARING AND SNAGGING
MIDDLE ROUGE RIVER
WAYNE COUNTY, MICHIGAN

LOCATION: The Middle Rouge River is located primarily in Wayne County and is the middle branch of the Rouge River. The River flows through 17 miles of County owned property which is known as the Middle Rouge Parkway. The Parkway is a developed linear park area with generally good access to the River.

RESOURCE PROBLEM: The Middle Rouge River and its six impoundments act as a large storm drain for its neighboring communities. A large number of blockages exist in the River in varying degrees of severity made up of trees and various other debris. These blockages cause erratic fluctuations in the water level and flooding which have an impact on several natural features. The lack of constant flow lowers the water quality and has a negative impact on fish and vegetative habitat. Periodic flooding causes severe erosion problems on the riverbanks and has caused the river channel to change locations in many areas. A recent survey of a four mile area identified 128 blockages of varying severity.

PROPOSED PROJECT: The proposed project would be coordinated with the Michigan Department of Natural Resources and Wayne County to include the development and implementation of a comprehensive cleanup of the blockages in the Middle Rouge River from the Nankin Lake Impoundment to approximately Ford Road. This plan would also include bank stabilization where needed and shoreline maintenance such as removing dead and diseased trees. Bank stabilization could be accomplished using logs, rocks, stone, vegetation, and other natural materials. It is estimated that there are 200 blockages in this 8 mile stretch of the Middle Rouge River, based on the 128 blockages mapped in a four mile section. The Remedial Action Plan of the Rouge River lists the following items as primary goals: (1) Improving the natural hydraulics of the river. (2) Develop fisheries where appropriate. (3) Eliminate nuisances such as odors, debris, and log jams. (4) Preserve lands adjacent to the Rouge River such as wetlands and floodplains that are needed to enhance the river's water quality. Each of these items would be addressed by this project.

PROJECT OUTPUTS: This project would result in a hydraulically improved watershed downriver from the Nankin Lake Impoundment that is free of blockages. Water quality, particularly dissolved oxygen, would improve since the flow would be unrestricted. Fish habitat would be enhanced with the improved water quality and flow. Current deflectors could be constructed to further enhance fish habitat. As the blockages were removed, eroded bank areas would be stabilized therefore protecting neighboring property.

FINANCIAL DATA: Based upon experience in other clearing and snagging projects in the midwest, a preliminary cost estimate of $ 1.0 to $1.5 million is considered reasonable for a clearing and snagging project on the Middle Rouge River. It is anticipated that a mobile crane, front-end loader, and trucks would comprise the major pieces of equipment to be used.

Mr. Pursell. The Wayne County Division of Parks and the Michigan Department of Natural Resources have suggested a snagging and clearing of the banks to stabilize the project along the Middle Rouge, which is one of the biggest problems we have in Michigan. Would you have authority to participate in that if requested by those various agencies or would you need additional legislation?

General Patin. Sir, it would depend upon whether it falls within a Federal program.

Mr. Pursell. You mean flood control, navigation, recreation, and various parameters?

General Patin. Yes, sir, that is correct.

Mr. Pursell. But, your office and the Detroit office have not ascertained whether you have or have not the authority at this point in time, I would assume?

General Patin. That is true, sir.

PROJECTS IN THE STATE OF MICHIGAN

Mr. Pursell. With respect to any of the other major projects, do you have any that you see are in trouble, particularly in Michigan?

General Patin. Not at this time sir.

Mr. Pursell. The Saint Joe project has a high priority, have you moved along on that project?

General Patin. Yes, sir, that study is underway.

Mr. Pursell. There is a project up in Grand Haven that I would like you to note. Congressman Fred Upton has submitted a letter to me and to you with a request to complete that project. There is also a very small project in Charlevoix, a retaining wall project of, I think, $75,000. I think you have the funds to complete that project.

So, you don't see any foreseeable unsolvable problems in my State?

General Patin. Not at this time, sir.

Mr. Pursell. I want to thank you for your outstanding leadership, and welcome to the Committee. Bing and Al and the rest of you, you have an outstanding operation. I am very pleased to work with your district offices, particularly John Glass out of Detroit. They have an outstanding organization, and I want to let you know that he is an outstanding district commander, and I appreciate working with your agency. I have some additional questions that you can answer for the record. Thank you, Mr. Chairman.

General Patin. Yes sir, we will do that.

[The information follows:]

ADDITIONAL QUESTIONS SUBMITTED BY CONGRESSMAN PURSELL

GRAND HAVEN HARBOR, MICHIGAN

Mr. PURSELL. The Grand Haven Harbor Deepening Project in Grand Haven, Michigan is currently authorized in Section 202 of the Water Resources Development Act of 1986, and this authorization expires in November, 1991.

Grand Haven City officials are interested in obtaining Preconstruction, Engineering and Design funds in FY 91, and the city is committed to the local cost-sharing requirements.

I believe it would be wise to make Preconstruction Engineering, and Design funds available now, so that review could begin and the project would not have to face a lengthy reauthorization after 1991.

What is the Corps' capability to start this project in 1991?

General PATIN. Sir, subject to the usual qualifications and constraints, our capability for this project is $350,000 to initiate Preconstruction, Engineering and Design.

Mr. PURSELL. Where does the Grand Haven project fall on the Corps' list of priorities?

General PATIN. Sir, this project was third on my list of eligible new Preconstruction, Engineering and Design projects within my division.

Mr. PURSELL. Does the Corps support funding in FY 91?

General PATIN. Yes sir, this project addresses commercial navigation, which is one of the high priority project purposes in our budget formulation.

GREAT LAKES ENVIRONMENTAL ACTION PROGRAM AND ROUGE RIVER (GREAT LEAP)

Mr. PURSELL. For many years, I have made clean up of the Rouge River in Michigan one of my top priorities, and the Corps, through the assistance of Colonel Glass and others in the Detroit office, has been very instrumental in this regard.

Most of these efforts have been remedial actions, while very little has been accomplished in long-term, overall cleanup.

I discussed this with Assistant Secretary Page when he was before this Subcommittee earlier this month. I told him that I believed the Corps should concentrate more on the "greener" or environmental issues. The Corps has a very talented staff, many of whom could provide leadership and expertise in our efforts to clean up our lakes and rivers.

I have been working with the Corps to develop what we are calling the Great Lakes Environmental Action Program, or Great LEAP.

What is the focus of Great LEAP?

General PATIN. Sir, as outlined in the draft legislation provided to you on this issue, the Great LEAP focus is in planning, design and construction of measures for fish and wildlife habitat enhancement, including but not limited to restoration of degraded habitat and creation of wetlands. It also focuses on resource monitoring and data management , including but not limited to sediment testing, wetland and shoreline monitoring, evaluating measures constructed and developing a computerized data management and data analysis system. I would also like to state at this point, that the draft legislative language provided on this issue does not imply an agency position, or support for or a commitment by the Administration.

Mr. PURSELL. The 3 basic components of the bill are habitat enhancement, remediation of degraded areas, and resource monitoring and data management. Would you review each of these for the Subcommittee?

General PATIN. Yes sir, the habitat enhancement activities would focus on plans developed by Federal, state and local fish and wildlife organizations to design and construct habitat projects, such as restoring wetlands, managing movement of sedimentation and constructing islands.

Remediation activities would involve engineering solutions to aid in the needed clean-up of the Great Lakes environment. Initial efforts would be to assist state and local governments in implementing their Remedial Action Plans for Great Lakes Areas of Concern.

The expansion of Corps data collection efforts in such areas as wetland extent and sediment quality, along with improved coordination of Great Lakes data collection and management activities, would be accomplished under the third facet of the program. Development of a geographic information system is critical to this element of the program.

Mr. PURSELL. What stimulated the Corps to pursue a Great LEAP?

General PATIN. Sir, the Corps became involved in the Great LEAP as a result of Congressional interest and a request for draft legislation on this subject. It is important to note that the draft legislation was provided as a technical service only and that it does not imply an agency position of support for or a commitment by the Administration.

Mr. PURSELL. How much money would the Corps require for the proposed Great LEAP, and what schedule do you envision?

General PATIN. At this time, no appropriations have been provided for this work. Thus, the Corps has not investigated in detail the possible costs or a schedule for the program.

Mr. PURSELL. How do you envision the Corps combining its traditional construction and debris-removing activities with new environmental clean-up efforts?

General PATIN. Sir, we have had discussions with the U.S. Environmental Protection Agency, National Oceanic and Atmospheric Administration's Great Lakes Environmental Research Lab, and the Great Lakes Fishery Commission, among others on this issue. Since enabling legislation does not exist, current authorities will be used to initiate Corps involvement to the extent possible.

Mr. PURSELL. Do you view this as a new mission or a new role for the Corps?

General PATIN. Sir, we are currently working under existing authorities to the extent possible. Unless additional authority is provided by the Congress and monies appropriated for this purpose, the Corps role will continue to be mostly one of support for other agencies.

Mr. PURSELL. How would you work with other Federal departments and agencies and with state and local governments?

General PATIN. Sir, since last summer, we have had numerous meetings with the Great Lakes regional offices of the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, the Great Lakes Fishery Commission, and the Great Lakes Environmental Research Lab of the National Oceanic and Atmospheric Administration. We have had briefings with numerous Congressional interests throughout the basin. We also have met with the environmental resource agencies of the Great Lakes States and with the Governors of Michigan and Wisconsin. Our meetings have also included county and municipal levels of government and environmental interest groups within the Great Lakes Basin.

Mr. PURSELL. Have you discussed this with the Great Lakes Commission?

General PATIN. Yes sir, we have. In fact, the Great Lakes Commission, which is an interstate compact commission composed of representatives appointed by the Governor of each of the Great Lakes States, passed a resolution in November 1989 fully supporting the Great Lakes Environmental Action Program initiative.

Mr. PURSELL. What type of projects would you consider, and how would the Rouge River be prioritized in such an event?

General PATIN. Sir, at this stage we have not defined, categorized, or prioritized any projects.

Mr. PURSELL. How would the Corps plan compare with the Upper Mississippi River Management Act of 1986 in Public Law 99-662?

General PATIN. Sir, the Upper Mississippi River System Environmental Management Program is viewed as the prototype for the Great LEAP initiative.

MUCK FARMERS

Mr. PURSELL. One of my colleagues recently contacted me regarding the issue of "muck" farming in his district in New York, whereby farmers have cleared one-time wetlands for farming.

The Corps of Engineers has denied farmers permits to clear their fields for this use, citing Section 404 of the Clean Water Act. Section 404 exempts "normal agricultural practices," but the Corps does not consider muck farming to be "normal." However, Section 404 does allow for activities which are "water dependent" and activities which cannot be conducted elsewhere. Despite testimony from agricultural experts at Cornell University, the Corps, EPA, and Fish and Wildlife have yet to determine whether muck farming meets these requirements.

These farmers are willing to place some of their less-productive fields back to wetlands, if the government will permit them to use other wetlands to grow their crops.

What is the Corps jurisdiction in this matter and how does this compare with that of EPA and Fish and Wildlife?

General PATIN. Sir, muckland farming takes place in a wetland, which is a water of the United States. Since the act of clearing the forested wetland involves the grading and movement of soil, a discharge to regulated waters will occur. Muck farming is subject to regulation under Section 404 of the Clean Water Act. In addition, the construction of drainage ditches by side casting of excavated material, along with the placement of fill for water control dikes, requires authorization under 404 of the Clean Water Act. Permit applications for muckland farming activities are reviewed in the same manner as any other proposal requiring authorization by the Corps of Engineers. Permit activities are coordinated with other Federal agencies.

The Federal Manual for Identifying and Delineating Jurisdictional Wetlands is the official manual used by four Federal agencies to determine the actual geographical limits of wetlands under Federal programs. The four agencies are the Corps of Engineers, United States Fish and Wildlife Service, the United States Environmental Protection Agency, and the Soil Conservation Service. The manual was finalized and adopted in January 1989.

"NO NET LOSS" POLICY

Mr. PURSELL. What is the strict interpretation of the Administration's "no net loss" policy -- does this mean no net loss for the nation, a state or specific area, a farm, etc.?

General PATIN. Mr. Pursell, the Corps headquarters and the Assistant Secretary of the Army for Civil Works are supporting the President and his initiatives on no overall net loss through the Domestic Policy Council Task Force. This means that until the task force on no net loss has completed its deliberations we are only following guidance from headquarters as provided in the recently established Memorandum of Agreement on mitigation and the Clean Water Act Section 404 (b)(1) guidelines. The guidance is applied to specific individual permit requests on a case by case basis.

Mr. PURSELL. When can we expect a more complete definition of "no net loss?"

General PATIN. Sir, the President's Domestic Policy Council Interagency Working Group on Wetlands is currently developing policy on the no overall net loss of wetlands. It is unknown at this time when the working group will report their findings.

CLEARING WETLANDS

Mr. PURSELL. What is the Corps doing to notify state and local authorities that they may not clear wetlands?

General PATIN. Sir, during the past year there has been considerable pressure by agricultural interests to expand muckland holdings in the State of New York.

The North Central Division's Buffalo District is the only district in which muckland farming occurs. The staff has met with the muckland farming interests on three separate occasions; March 29, 1989, May 17, 1989, and August 10, 1989. Participants in these meetings included the Oswego County Cooperative Extension Service, Oswego County Soil and Water Conservation District, Oswego County Vegetable Growers Association, Cornell Agricultural Cooperative Extension Service, New York Farm Bureau, and a number of muckland farm operators.

Recently, the district staff has completed a pamphlet describing the Corps regulatory program and its impact on the general public. This pamphlet will be widely distributed throughout the district and supplies of the pamphlet will be placed in area Soil Conservation Service and Soil and Water District offices.

The Buffalo District staff has spoken at a number of meetings and conferences about the Corps permit program. Through their efforts, large segments of the public are being educated on the regulatory process. More speeches, talks, and seminars are scheduled.

Mr. Bevill. The Chair now recognizes Mr. Fazio.

Mr. Fazio. No questions, Mr. Chairman, thank you.

Mr. Bevill. The Chair recognizes Mrs. Smith.

FORT WAYNE, INDIANA

Mrs. Smith. I would like to welcome you, General Patin. We have heard on both sides what an outstanding job you are doing, and we appreciate your interest in all of these projects. Congressman Myers couldn't be here today, but he left a number of questions and some on behalf of Congressmen Porter and Gunderson. I will ask one or two of these.

You are aware that several communities in northern Indiana had extensive flooding last week. Fort Wayne, I understand, experienced serious damage. Could you update the committee on the project in Fort Wayne?

General Patin. Yes. The project is progressing generally on schedule. As a matter of fact, we are working on the Preconstruction, Engineering and Design. The General Design Memorandum is presently 31 percent complete. Plans and specifications are scheduled for completion in September 1992.

Mrs. Smith. Thank you. That was a specific and concise answer.

ILLINOIS BEACH STATE PARK

Mr. Porter tells us that he has a great interest in the Illinois Beach State Park. He said that it was approved in 1986, based on an 1982 interim report, and what he wants to ask is when does the North Central Division plan to report on this project, and when will the Corps send its final report to Congress?

General Patin. Yes, ma'am. The final feasibility report is now in my headquarters being reviewed, and I will be submitting that report to our Washington headquarters next month, March of 1990. Allowing four to six months for Washington-level review, it should reach Congress by the July-September time frame.

Mrs. Smith. Thank you very much.

Mr. Chairman, I have more questions on behalf of Mr. Myers and Mr. Gunderson.

[The information follows:]

QUESTIONS SUBMITTED BY CONGRESSMAN MYERS

FORT WAYNE, INDIANA

Question. Is the Fort Wayne project proceeding in the most expeditious and efficient manner possible? Please explain.

Answer. The project is progressing in the most expeditious and efficient manner possible. However, the design is more complex than expected. The design effort will be more costly and the completion of Preconstruction, Engineering and Design will be delayed from the date last given in testimony.

LITTLE CALUMET RIVER, INDIANA

Question. What is the status of the Little Calumet River, Indiana, project?

Answer. The Phase II General Design Memorandum is undergoing review in my office, and work on the first Feature Design Memorandum is in progress. Plans and specifications for the initial construction segment, the non-structural measures in the reach east of Cline Avenue, are scheduled to be completed in May 1990. The construction contract for the non-structural measures will be awarded in September 1990. Work on Feature Design Memorandums Numbers 2, 3 and 4 will be initiated in fiscal year 1990.

BURNS WATERWAY HARBOR, INDIANA

Question. Is there any work at the Burns Harbor, Indiana facilities, including breakwaters and other structures, that the Corps could accomplish in Fiscal Year 1991 that is not included in the budget request?

Answdr. Yes sir, a Letter Report on the structural condition and analysis of the Burns Harbor breakwater is scheduled for completion in Fiscal Year 1990. An estimated $1,500,000 could be used for initiation of engineering and design of the repairs recommended in the Letter Report. Advertisement and possible award of the first phase construction contract will be late in calendar year 1991.

INDIANA SHORELINE EROSION, INDIANA

Question. Please update the Subcommittee on the status of the Indiana Shoreline Erosion, Indiana, project. Is the local cooperation adequate to support progress of the project?

Answer. Yes sir, the General Design Memorandum will be completed in June 1990. Plans and specifications will be five percent complete by the end of Fiscal Year 1990. The Water Resources Development Act of 1988 amended the 1986 Water Resources Development Act by specifying that the Federal share of the cost of this project be determined in accordance with Title I of the 1986 Act. Since there is no local sponsor and no non-Federal cost sharing requirement for the Michigan City Harbor project and the lands to be protected are Federally owned, application of the provisions of Sections 101(c) and 103(d) of the 1986 Act results in no non-Federal cost sharing requirement for either the mitigation, construction or subsequent operation and maintenance of the project.

WATER LEVELS OF THE GREAT LAKES

Question. General Patin, as the levels of the Great Lakes rise and fall, the local interest in projects to either prevent high water damage or control the lake levels similarly rise and fall. Please comment on the current lake levels and how related projects are proceeding.

Answer. Currently, Lakes Superior, Michigan, and Huron are slightly below average while Lakes St. Clair, Erie, and Ontario are above average. While it is true that the level of interest in shore protection projects changes with changes in lake levels, these projects are designed to function regardless of the lake levels. Therefore, we are proceeding with a number of projects such as the Maumee Bay State Park in Ohio and other continuing authorities projects that will protect the shoreline from erosion.

QUESTIONS BY CONGRESSMAN MYERS
(ON BEHALF OF MR. GUNDERSON)

UPPER MISSISSIPPI RIVER SYSTEM - ENVIRONMENTAL MANAGEMENT PROGRAM

Question. The Subcommittee has noted with interest, the emphasis in this year's budget on the environmental initiatives of the Corps. In particular, the budget highlights 13 separate environmental maintenance and restoration initiatives totaling nearly $53 million. It is curious that the highly-regarded Environmental Management Program on the Upper Mississippi River is not mentioned. Given the fact that many Corps spokesmen have emphasized the high priority of this program why is it not included among the environmental highlights of the budget?

Answer. The Upper Mississippi River System-Environmental Management Program (UMRS-EMP) was omitted from the list because the project has been on-going for several years and was authorized for the purpose of environmental enhancement and not for mitigation and restoration. The UMRS-EMP will result in positive net gains for the environment, which, unlike mitigation, is compensation for the adverse environmental impacts of a project.

Question. Lock and Dam 26 construction has no 10 year time limit on it like the Environmental Management Program. Therefore Gramm-Rudman cuts do not affect the outcome of building the second lock. The lock will be built even if it takes longer. On the other hand EMP not only has a 10 year limit, but it has an authorization limit that doesn't include inflation. Do you feel this is equitable?

Answer. Since the project was not authorized as mitigation for the construction of Lock and Dam 26, I can only guess that it was a conscious decision at the time of authorization to place a time limit on construction. There could have been other reasons for the restriction of which I am not aware.

Question. Will the Environmental Management Program fall short of its goals due to this situation?

Answer. We recognize that the UMRS-EMP had a slow start and due to the unique nature of the program, construction has not progressed to the point that we had anticipated for a ten-year schedule. The current authorization terminates at the end of FY 1997. We propose to complete an interim report evaluating the program in 1993. Because of the short-time frame and unique nature of the projects in-place, it will be difficult to fully evaluate the success of our habitat projects or to obtain scientific results from Long Term Resource Monitoring studies. However, we will have enough experience and preliminary results to support our 1993 interim report. Thus, I believe the UMRS-EMP will meet its goals.

Question. The budget proposal included $14.9 million for the Upper Mississippi River Environmental Management Program. What additional capability exists in FY 1991 for this program, particularly given the fact that at least a portion of these funds are transferred to the Fish and Wildlife Service, which has expressed the need for full funding.

Answer. We do not have any additional capability for FY 1991.

Mr. BEVILL. Thank you. The rest of those questions will be submitted for the record. The Chair recognizes Mr. Thomas.

Mr. THOMAS. I have no questions, Mr. Chairman. Thank you.

Mr. BEVILL. General, thank you very much for your fine presentation.

General PATIN. Thank you, Mr. Chairman.

MONDAY, FEBRUARY 26, 1990.

REMAINING ITEMS

WITNESSES

MAJOR GENERAL PATRICK KELLY, DIRECTOR OF CIVIL WORKS

DON B. CLUFF, CHIEF, PROGRAMS DIVISION, CIVIL WORKS

DR. BORY STEINBERG, CHIEF, PROJECT MANAGEMENT DIVISION, CIVIL WORKS

JOHN P. ELMORE, CHIEF, OPERATIONS, CONSTRUCTION, AND READINESS DIVISION, CIVIL WORKS

DOUGLAS J. KAMIEN, ACTING CHIEF, ENGINEERING DIVISION, CIVIL WORKS

WILLIAM L. LOCKWOOD, DEPUTY CHIEF, POLICY AND PLANNING DIVISION, CIVIL WORKS

DR. WILLIAM E. ROPER, ASSISTANT DIRECTOR OF RESEARCH AND DEVELOPMENT, CIVIL WORKS

OPENING REMARKS

Mr. BEVILL. We will now hear from our Director of Civil Works, General Kelly.

General Kelly, we are always pleased to have you with us, and we are always pleased to hear from you. We appreciate the great job you are doing as our Director of Civil Works for the Corps of Engineers.

You may proceed as you wish.

General KELLY. Thank you, Mr. Chairman.

Mr. BEVILL. Actually, you have gotten another star since you last appeared here. We want to congratulate you on that.

General KELLY. Thank you, Mr. Chairman.

Mr. BEVILL. We wish that we had many General Pat Kellys.

STATEMENT OF GENERAL KELLY

General KELLY. I am honored, Mr. Chairman, to make my second appearance before you as the Director of Civil Works.

INTRODUCTIONS

With me today from the Civil Works Directorate are Don Cluff, Chief of Programs; Dr. Bory Steinberg, Chief of Project Management; John Elmore, Chief of Operations, Construction, and Readiness; Doug Kamien, our Acting Chief of Engineering; Bill Lockwood, the Deputy Chief of Policy and Planning; and Dr. Bill Roper, Assistant Director of Research and Development.

REMAINING ITEMS

The Fiscal Year 1991 budget request for the Army Civil Works Program includes a number of nationwide programs and activities not covered in the presentations of the Division Commanders. I am here to speak on behalf of these "remaining items."

With your permission, I have a complete statement to submit for the record.

Mr. BEVILL. Without objection, your complete statement will be made a part of the record, and you may summarize or proceed as you wish.

[The information follows:]

DEPARTMENT OF THE ARMY - CORPS OF ENGINEERS
OFFICE OF THE CHIEF OF ENGINEERS

REMARKS OF MAJOR GENERAL PATRICK KELLY
DIRECTOR OF CIVIL WORKS
ON THE REMAINING ITEMS OF THE FISCAL YEAR 1991 CIVIL WORKS BUDGET

PRESENTED BEFORE THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS
OF THE HOUSE OF REPRESENTATIVES

FEBRUARY 26,1990

DEPARTMENT OF THE ARMY - CORPS OF ENGINEERS
OFFICE OF THE CHIEF OF ENGINEERS

REMARKS OF MAJOR GENERAL PATRICK KELLY
DIRECTOR OF CIVIL WORKS
ON THE REMAINING ITEMS OF THE FISCAL YEAR 1991 CIVIL WORKS BUDGET

PRESENTED BEFORE THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT,
COMMITTEE ON APPROPRIATIONS, OF THE HOUSE OF REPRESENTATIVES

FEBRUARY 26, 1990

INTRODUCTION

Mr. Chairman and members of the Subcommittee, I am honored to make this appearance before you as Director of Civil Works. With me today from the Civil Works Directorate are: Mr. Dan M. Mauldin, Deputy Director of Civil Works; Mr. Don Cluff, Chief, Programs Division; Dr. Bory Steinberg, Chief, Project Management Division; Mr. John Elmore, Chief, Operations, Construction, and Readiness Division; Mr. Doug Kamien, Acting Chief, Engineering Division; Mr. Bill Lockwood, Deputy Chief, Policy and Planning Division; and from the Directorate of Research and Development; Dr. Bill Roper Assistant Director of Research and Development (Civil Works).

I would like to note some highlights of the FY 1991 budget request for Remaining Items, which include our nationwide programs and activities not covered in the presentations of the Division Commanders. These also include the General Expenses appropriation, which provides for executive direction and management of the Civil Works program at the Corps Headquarters and the Division Offices. I will touch on major items of plant and equipment proposed for procurement under the Revolving Fund and on the Regulatory Programs account.

REMAINING ITEMS OVERVIEW

The total for Remaining Items in the budget request is about $417 million of which $59.5 million is for General Investigations, $87.6 million for

Construction, General, $33.4 million for Operation and Maintenance, General, $75.1 million for Regulatory Program, $25.0 million for Flood Control and Coastal Emergencies, and $136.1 million for General Expenses.

ACTIVITIES UNDER THE GENERAL INVESTIGATIONS APPROPRIATION

DEVELOPMENT OF A FEDERAL INFRASTRUCTURE STRATEGY

The budget includes $350,000 to initiate development of a Federal action strategy addressing America's infrastructure problems. Currently there is no integrated Federal focus on infrastructure issues including no means to evaluate and implement the recommendations such as those of the National Council on Public Works Improvement contained in its 1988 report "Fragile Foundations". The first year effort would initiate coordination among Federal study participants, establish a Federal Infrastructure Advisory Board, and lay out a specific course of action to develop a Federal infrastructure strategy. The remaining two years will be spent developing recommendations addressing such issues as how agencies can modify their programs to improve infrastructure development and management; the proper public/private roles in infrastructure; the benefits associated with infrastructure and the use of such information in evaluating and prioritizing public and private investment; and new institutions or institutional changes needed to adequately address the Nation's infrastructure problems.

NATIONAL WATER MANAGEMENT DURING DROUGHT

The budget request includes $2,500,000 to continue a special study of national scope which will address water resources management during drought situations. The study is in response to the drought of 1988, and its primary objective is to determine how water is managed during drought, formulate and evaluate alternatives and make recommendations for change to result in more efficient and effective drought response.

We are about four months into the study and therefore we do not yet have specific recommendations. However, we have already identified areas where changes to our current response procedures could result in more efficient and improved drought response. Along these lines, improved cooperation, coordination, and communication with states, regional water resources associations, and other Federal agencies, appear very promising in achieving better and more efficient management of our respective water resources. The roles of all agencies that respond to droughts need to be better defined and coordinated. Agencies need to improve their ability to communicate the risks and uncertainties to the decision makers and the public.

In FY 1991 we will continue our efforts based on the findings of our efforts in 1990.

COOPERATION WITH OTHER FEDERAL AGENCIES, STATES, AND NON-FEDERAL INTERESTS

The budget request for Cooperation with Other Federal Agencies, States, and non-Federal Interests is $10,250,000, an increase of $2,254,000 from the FY 1990 allocation of $7,996,000. A major portion of this request is $4,500,000 for Planning Assistance to States, including all 50 states, the District of Columbia, Puerto Rico, the Virgin Islands, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands. We are proposing to apply the beneficiary pay principle to this worthwhile program by implementing 10% non-Federal cost-sharing with the states in FY 1991, which would then make this a $5 million total program. The non-Federal share would be increased to 30% in FY 1992 and to 50% in FY 1993 and thereafter. To implement the cost sharing, each district doing work for a state would execute a cost-sharing agreement with that state, stating the work to be performed with that fiscal year's funds.

Under this program, we coordinate with and assist state planners to prepare comprehensive plans for conservation, development, and utilization of their water and related resources; help them become more active and effective working partners with the Federal Government in resolving water resources problems of mutual interest; and submit reports and recommendations to Congress on appropriate Federal partnership in execution of cooperative plans.

Another major portion of the request is $3,400,000 for Special Investigations, including: review of applications referred to us by the Federal Energy Regulatory Commission for permits or licenses for non-Federal hydropower developments at, or affecting, Corps water resource projects; review of reports and environmental impact statements of other agencies and special studies not elsewhere funded. Additionally there is $125,000 each for cooperation with the Soil Conservation Service and Bureau of Reclamation, $200,000 for cooperation with various Basin Commissions and Committees, and $200,000 each to initiate cooperation with Federal and state agencies in the Environmental Protection Agency's National Estuary Program and with Federal and state agencies, and non-Federal interest in support of the North American Waterfowl Management Plan administered by the U.S. Fish and Wildlife Service. The balance of the request is $1,000,000 for interagency water resources development and $500,000 for completion of the update of the national dam inventory.

COLLECTION AND STUDY OF BASIC DATA

The request for $15,710,000 for Collection and Study of Basic Data is an increase of $3,691,000 from the FY 1990 allocation. There are nine programs under this category, and I will discuss individually the three largest programs, namely, Flood Plain Management Services, Coastal Field Data Collection and International Water Studies. The other six programs, which total $2,610,000 and remain essentially level-funded, are: Stream Gaging, $600,000, for which we transfer funds to the U. S. Geological Survey; Precipitation Studies, $450,000, for which we transfer funds to the National Weather Service; Hydrologic Studies, $280,000; Scientific and Technical Information Centers, $130,000; Transportation Systems, $850,000; and Environmental Data Studies, $300,000.

Flood Plain Management Services. The largest portion of the Collection and Study of Basic Data request is $9,000,000 for the Flood Plain Management Service program, an increase of $2,362,000 from the FY 1990 allocation. As has been discussed by Assistant Secretary Page and General Hatch, we believe the beneficiary pay principle should be applied to this program. Fees would be phased in over a 3-year period, gradually increasing the non-Federal share, from 10 percent to 30 percent to 50 percent. With the institution of 10% non-Federal cost-sharing in FY 1991 the total program will be $10,000,000.

To implement cost sharing, we plan to request reimbursement from other Federal agencies for costs associated with responding to their requests. In order to establish a workable cost sharing arrangement for non-Federal customers, we have reviewed the Program's activities to categorize the type of requests we receive for technical services and to estimate the relative costs associated with each type. We have concluded that the most workable arrangement is to establish a basic fee schedule for certain categories of requests that can be filled with data on hand and completed in a short period of time. The fee schedule would be based on current experienced costs. When a request for technical assistance requires a special effort or study, we would estimate the cost of that effort and work out the cost sharing agreement with the non-Federal requestor before proceeding.

The Flood Plain Management Services Program continues to be one of the most important non-project services that the Corps provides for states, local governments and the general public. There is an increasing demand for flood hazard information, technical services, and planning guidance provided by this program. By working together with Federal, state and local land use decision makers, we are able to alert them to various flood hazards, promote prudent use of the flood plains, and help avoid future losses to life and property.

Since 1968 the Corps has provided some 856,000 responses to requests for technical services. In FY 1989 we provided 96,000 responses related to properties valued at $15 billion.

This Program has been highly effective in providing flood hazard data and planning assistance. We are providing flood plain management services to the non-Federal public and private sectors which in turn invest their own funds to avoid flood hazards and make good use of the flood plains. This not only avoids future losses to life and property but also reduces the need for costly Federal flood control works as well as the demand for other Federal, state, and local services such as providing disaster assistance during and following floods. To date the Federal government has borne the full cost of this program. Institution of cost sharing in accord with the beneficiary pay principle recognizes that state and local governments also benefit from the program and places it on a comparable basis with feasibility studies.

Coastal Field Data Collection. The $3,000,000 requested for FY 1991 for this program is $773,000 more than the FY 1990 allocation. The additional funding is needed for increased operational cost of wave gaging on the Atlantic, Pacific, Gulf of Mexico, and Great Lakes coasts and increased cost for wave information studies and management.

To professionally accomplish our coastal engineering mission, including planning, design, construction, and operation and maintenance of coastal and lake navigation, flood control, and shore protection projects, the Corps requires a better understanding of severe storm and hurricane effects, and high quality long-term data on: wind and wave climatology; tidal and longshore currents and water levels; erosion and accretion rates, and their manifestation as variations and trends in shoreline, beach profile, and nearshore bottom configurations; sediment characteristics, transport, and deposition; and other geographical and geomorphological parameters. Such data are generally not presently available, or are unreliable and of poor quality, or are statistically inadequate because they are too sparsely distributed with respect to time and place.

Ideally, the requisite records would already be at hand at each project site, and with adequate monitoring of local conditions continuing to provide the information needed for confirming, refining, and adjusting the baseline data. Such intensive coverage is not practical because of the prohibitive cost and the lead time required. For example, sufficient time is not available prior to or during the preauthorization and preconstruction phases of projects to accumulate the years of data required for adequate assessment of technical, economic, and environmental, feasibility, and for consequent cost-effective project execution, and maintenance. Accordingly, the Corps has established the Coastal Field Data Collection Program that gathers and analyzes data on a regional basis and statistically enhances and extends this data base so that it can be used for individual studies, projects, and other activities.

The data developed by this program also have considerable applicability for interested Federal, state, and local agencies, and by the academic and private sectors. The related activities undertaken and the information produced by the entire community of interest in coastal engineering, climatology, and other facets of the coastal zone are mutually shared by all concerned. Also contributing significantly to extending our funding and manpower resources is our widespread use of wave forecasting models. Twenty years of directional wave data at about 10 mile intervals for the Atlantic, Pacific, and Gulf coasts of the United States are available. Work on similar data for the Great Lakes and an additional 10 year period (1976-1985) for all coasts is underway.

We have also developed cooperative wave gaging efforts with the States of California, Florida, and Alaska. The state and Federal gages form a network with each responsible for funding its share and the data is shared. For California the seventeen gages have their data processed and published through the California system at Scripps Institute of Oceanography. We obtain data from eleven gages around the Florida coast from the University of Florida system. And in Alaska, three gages have been deployed and operated by the Corps with some initial funding assistance from the state.

International Waters Studies. A total of $1,100,000 is requested for the International Waters Studies activity in FY 1991. These funds are required for two separate activities. The first is for Corps of Engineers field personnel assigned study responsibility to assist the United States Government in meeting obligations and commitments required under provision of treaties and other international agreements between the Governments of the United States and Canada on a continuing basis. Such participation by the Corps and other agencies is essential in maintaining full coordination by all interests concerned in the regulation, control, and utilization of the boundary waters.

The second is for continued participation in an International Joint Commission study of the high and low water levels of the Great Lakes. This study is in response to a 1 August 1986 reference, or request for study, sent by the two governments to the International Joint Commission. The reference calls for a comprehensive study of the Great Lakes Basin to examine and report upon methods of alleviating the adverse consequences of fluctuating water levels. Phase II of this study is scheduled to be completed in September 1991.

RESEARCH AND DEVELOPMENT

Our FY 1991 request for Research and Development under General Investigations is $21,700,000, an increase of $1,620,000 over the FY 1990 allocation. The General Investigations research and development program is our keystone program for providing advances, improvements, and efficiencies for the Corps Civil Works mission. It supports the entire scope of this mission from planning and design to construction, operation and maintenance. This program continues to provide practical end products and a high return on investments for the Corps and the taxpayer. I would like to bring to your attention some examples of recent benefits provided by this program.

*Coastal Storm Erosion Simulation: Until recently the simulation of storm erosion and scour was feasible only using very expensive full scale wave tanks located in Europe. The Corps has been able to reproduce in a mid-scale U. S. flume erosion tests conducted in the large West German tank facility. This was made possible because our German coastal engineering colleagues provided their test data to us at no cost to advance science. Our new mid-size testing approach costs one-twentieth the cost of full-scale testing in European facilities and allows improved and more economical design of Corps coastal flood protection and storm damage reduction projects to be done in the U.S.

*Ice Jam Flooding: Research has provided the design criteria for simple structures to prevent ice jam flooding. The newly constructed ice control structure on Oil Creek in Oil City, Pennsylvania, was a result of this work and received its best test this winter, passing with flying colors. The severe cold spell in December 1989 created the most extreme ice jam threat to the city since it became operational in 1988. Oil City has been spared its most costly ice jam flood to date.

*An aggressive development and technology transfer program using the Global Positioning System has resulted in Corps adoption of the system for geodetic surveying. Annual savings are about $3 million. Planned expansion of the system into the marine environment has been well received. When fully implemented the Corps' hydrographic surveying program will save $10 - 15 million annually.

*Risk Analysis Model: A risk analysis computer model for dredge material disposal has been developed. This model incorporates environmental aspects of the disposal of dredged material of varying contamination to alternative disposal sites. The model allows decision makers to select disposal sites considering both the risks to the environment and the costs of disposal.

CONSTRUCTION PRODUCTIVITY ADVANCEMENT RESEARCH

Construction industry response to the Construction Productivity Advancement Research Program has been a bright spot in the still gloomy picture of U. S. productivity painted in the news media and in testimony before the Congress. Work is underway on projects in the Fiscal Year 1989 program and response to our request for Fiscal Year 1990 proposals is growing each day. Over 150 requests for information have been received, over and above the over 800 concerns and organizations who had previously expressed interest in the program. We have requested the authorized $5 million for this program in Fiscal Year 1991 to continue and expand the program, and provide great benefits to the construction industry, the Corps, and the country in general.

CLIMATE CHANGE IMPACT PROGRAM

The amount of $500,000 is requested in FY 1991 to initiate a Climate Change

Impact Research Program. This program is designed to respond to the President's initiative on global warming expressed through the Intergovernmental Panel on Climate Change and the Federal Coordinating Council for Science, Engineering, and Technology in the Executive Office. The purpose of the program is to enable the Corps of Engineers to develop predictive models and evaluation techniques and procedures that will assist project analysis to formulate and evaluate cost effective solutions and coordinated response strategies under conditions of climate uncertainty.

MAGNETIC LEVITATION TRANSPORTATION PILOT PROGRAM

The Corps of Engineers and the Department of Transportation, in cooperation with several other Federal agencies have initiated a cooperative public-private program to facilitate development of a high-speed magnetically levitated and propelled transportation system for the United States. The $3,500,000 request of the Corps for FY 1991 to continue this program would provide funds for activities which include cost shared work with private sector partners to develop design concepts, and continue work on technical and health/safety assessments. Our efforts will complement those of the Department of Transportation. The focus of the Corps effort will be on the development of U.S. magnetic levitation technologies and associated sciences and industries while the Department of Transportation emphasis will be on examination of the economic feasibility of the project and establishment of the necessary safety and operating criteria.

ACTIVITIES UNDER THE CONSTRUCTION, GENERAL APPROPRIATION

CONTINUING AUTHORITIES

The request for the six Continuing Authorities funded under Construction, General is $59,000,000, an increase of $5,698,000 from the FY 1990 allocation. The request covers funding of planning, design, and construction to provide solutions to flood control and emergency streambank erosion problems under the Section 205 and Section 14 programs, to navigation problems under the Section 107 program, to shoreline damage problems under the Section 103 and Section 111 programs, and to clearing and snagging problems under the Section 208 program. The FY 1991 request is adequate to conduct a balanced program of new ($21,000,000) and continuing work ($38,000,000). Although no major construction new starts are proposed, the FY 1991 budget would fund small project new starts in the Continuing Authorities program.

We are continuing to accord a high priority to meeting the major needs for flood damage protection, commercial navigation, and emergency bank protection where public facilities are threatened. The Continuing Authorities projects remain popular, and we are confident of our sustained success in implementing these programs in the future.

INLAND WATERWAYS USERS BOARD

Section 302 of the Water Resources Development Act of 1986 created an eleven-member advisory board of inland waterway users and shippers to make recommendations to the Secretary of the Army and the Congress regarding construction and rehabilitation priorities and spending levels for commercial waterway improvements. Board members were initially appointed in late Spring of 1987. The Board has held eight meetings since it was created.

In December 1989, the Board issued its Third Annual Report to the Secretary of the Army and the Congress. The Board made recommendations for prioritizing construction and major rehabilitation projects, and projects in various stages of preconstruction engineering and design, and navigation planning studies. In its Third Annual Report, the Board noted that its recommendations were made from the Board's perspective of reaching priority decisions based on needs for navigation improvements throughout the waterway system; and, that recommendations were derived following discussions which reflected the positions of shippers who use the waterway system to move their commodities and carriers who must operate on the system to serve the shippers.

The Board's recommendations are a valuable addition to our program and budget development process. We appreciate the contribution of the Board's chairman and its members to efficient management and modernization of our inland waterways. We believe the Board provides an important advisory function to both the Secretary of the Army and the Congress.

ALTERATION OF BRIDGES

Our FY 1991 request does not include funds for the Alteration of Bridges. Funds in the amount of $2,000,000 will be requested in a budget amendment upon enactment of legislation transferring the alteration of bridges function from the Department of Transportation to the Corps. This amount would be for design and construction of alterations of obstructive bridges as authorized under the Truman-Hobbs Act. An additional $4,000,000 would be requested under the Regulatory Program Appropriation for the issuance of permits for bridge construction. This program is discussed further in the section on the Regulatory Program.

PROJECT MODIFICATIONS FOR RESTORATION OF THE ENVIRONMENT

We recommend $5 million for Section 1135 for Project Modifications for Restoration of the Environment. These funds will be used to carry out a demonstration program for the purpose of making such modifications in the structures and operations of water resources projects constructed prior to enactment of the Water Resources Development Act of 1986 which are feasible and consistent with project purposes and which will also restore the quality of the environment. The non-Federal share of any such modifications carried out under

Section 1135 will be 25 percent.

AQUATIC PLANT CONTROL

The nationwide Aquatic Plant Control Program for FY 1991 is budgeted for $8,500,000, an increase of $1,048,000 over the FY 1990 allocation. This is a cooperative Federal-state program aimed at controlling aquatic weed infestations which have significant economic or environmental effects on the use of our waterways. Control of problem aquatic plants provides benefits for navigation, flood control, major drainage, agriculture, water-based recreation, fish and wildlife, and public health. The budgeted amount will permit needed planning and control operations in 20 states and Puerto Rico and will permit continuation of our important Aquatic Plant Control Research activities.

The FY 1991 request includes $3,500,000 for research, including support of the TVA effort at Guntersville Lake in Alabama, $152,000 for planning, and $4,848,000 for control operations. Costs for research dealing with regional or nationwide problems are 100 percent Federal. The Water Resources Development Act of 1986 requires that non-Federal interests provide at least 50 percent of the cost for planning beyond the reconnaissance stage and at least 50 percent of the costs for control operations. Control programs utilize various biological, chemical, and mechanical tools and techniques. About 1.6 million acres of the nations waters are infested with problem aquatic plants. The aquatic plant problem was at one time confined to the Southeast states, but the problem has become a concern in the Northwest, Northeast, and more recently in the Potomac River.

EMPLOYEES' COMPENSATION

The request includes $14,930,000, an increase of $1,813,000 from the FY 1990 allocation, for transfer to the Department of Labor to replenish the Employees' Compensation Fund, for costs charged to that Fund during the period July 1, 1988 through June 30, 1989. The transfer is for payment of benefits and claims on account of injury or death of Corps of Engineers employees carried under the Civil Works program.

ACTIVITIES UNDER THE OPERATION AND MAINTENANCE, GENERAL APPROPRIATION

MONITORING OF COMPLETED COASTAL PROJECTS

The request of $1,850,000 for Monitoring of Completed Coastal Projects will provide for the ongoing program of monitoring critical coastal engineering parameters of selected coastal projects to determine and analyze project-induced changes in topography, currents, tidal stages, and other coastal processes phenomena. Increased monitoring activity in ongoing efforts and increased management costs necessitate an increase of $100,000 over the FY 1990 allocation. The data collected and analyzed are used to evaluate project performance in relation to design, operation, and maintenance expectations and to develop improved designs for coastal projects and desirable modifications in their operation and maintenance modes. Studies are performed at the local level to evaluate project performance and coastal processes response in relation to the particular needs of each project. Additionally, the information is collected and analyzed from a Corps-wide perspective to document successes and the sometimes costly lessons learned and to transfer the information into guidance for field and management staff. The information developed by the Monitoring of Completed Coastal Projects program is made available to other Federal, state, and local agencies concerned with planning and regulating the conservation, development, and use of coastal resources.

DREDGING RESEARCH PROGRAM

The Dredging Research Program will begin its fourth year in FY 1991. The purpose of the program is to reduce the cost of dredging operations by developing, adapting, and demonstrating equipment and operational tools that can provide rapid and broadly applicable benefits to the Corps. Examples of program activities include development of an improved more effective drag head design for hopper dredges, automated inspection system to assist Federal employees in the inspection of contract dredging, and studies on comprehensive management techniques for dredging operations.

Accomplishments scheduled through FY 1990, the third year of the Dredging Research Program, include field demonstration of new drag head designs, acoustic devices for rapid surveys of consolidated sediments, improved instrumentation for monitoring disposal operations, updated manual of instructions for hopper dredges, evaluation of equipment for placement of sediments near shore, detailed designs for a new sand bypassing eductor system, and development of empirical methods for predicting sediment movement at disposal areas.

Funding requested for the Dredging Research Program for FY 1991 is $7,200,000 which is a modest increase over the FY 1990 amount of $5,833,000 and reflects the scheduled build-up of funding for this seven-year, $35 million total program. These funds will be applied for continuing work on cost-saving improvements in all aspects of Civil Works dredging.

WETLANDS RESEARCH PROGRAM

High on our list of priorities this year is a proposed new Wetlands Research Program whose purpose is to use environmental, scientific, and engineering disciplines to develop new or improved cost-effective, environmentally sound methods and techniques to protect, create, restore, and manage the Nation's wetlands under Corps of Engineers jurisdiction. Key areas of research and development include improved quantitative knowledge of functions and values of wetlands; predicting and minimizing impacts; wetland change assessment techniques;

wetland restoration and development; and in-depth quantitative understanding of critical processes of wetlands. Coordination and cooperation with Federal and State agencies, environmental and conservation groups and academia are extremely important aspects of the Wetlands Research Program. Plans include cooperative research, data acquisition, and field demonstrations. Information developed from the program will be disseminated widely to Corps of Engineers offices, other governmental agencies, academia, conservation, and wildlife groups and the public. Because of the urgency in preventing further losses of the Nation's precious, yet rapidly disappearing, wetlands, this program is being placed on a fast track for completion in three years. The budget requested for the first year is $3 million with a total estimated study cost of $22 million.

REPAIR EVALUATION MAINTENANCE REHABILITATION II

The Repair Evaluation Maintenance Rehabilitation research program which was completed in FY 1989 accounted for O&M savings, during the last year, of over $40 million plus improved safety and reliability and reduced manpower requirements. Over the next five years, savings resulting from this program, are expected to exceed $200 million. Encouraged by this overwhelming success from improved technology and the firm prospects of achieving even greater efficiency, we propose to launch this program in FY 1991 to address new and different needs which have been identified by Corps field offices.

The first year of the proposed seven year program will be used to plan and initiate in-house and contract efforts and studies for maintenance, repair, and rehabilitation problems associated with: concrete and steel structures, geotechnical applications, hydraulics, coastal improvements, and electrical and mechanical equipment. The FY 1991 budget request includes $4 million for this program with an estimated total seven year program cost of $35 million. I would like to bring to your attention a few examples of successes of this program.

*A new hydrodynamic computer code called STREMER has been developed to make use of our traditional physical hydraulic models more effective and less costly. STREMER and a physical model are being used interactively in a process called hybrid modeling to find the best approach for design of projects. This process allows us to use the computer for a general examination of several options cheaply and quickly. The details of the most promising option are then obtained from the physical model. Use of this hybrid technique reduces physical modeling costs at least 25%.

*Concrete surface treatment: numerous materials are being promoted for surface treatment of concrete structures and no definitive guidance is available for the selection and application of these materials. Our research has shown a wide variation in the effectiveness of these materials with some materials providing no protection at all. Tests results were used to produce guidance for the selection and application of these types of materials. The estimated annual savings that will result from the use of this guidance is $300,000 to $500,000 per year.

*The application of the Blended Chemical High Temperature to cleaning of relief walls will extend the typical period for cleaning from 3 years to 4 or 5 years. Annual savings of $500,000 are expected.

*Development of a precast stay-in-place forming system for rehabilitation of navigation lock walls eliminates extensive down time of the locks during repair. This procedure can save from $0.5 to $1.0 million per day of lost revenue for commercial shippers.

*Underwater Concrete Repair: We developed a new underwater concrete mixture and guidance for placing the concrete in underwater repair situations. This new technology was successfully used for the repair of the eroded sill of the stilling basin at the Corps Red Rock Dam project in Illinois. Estimated savings of $500,000 resulted from this one application by eliminating the need for dewatering the repair area.

PROTECTION OF NAVIGATION

The request for $7,580,000 under the Protection of Navigation heading provides for accomplishing the essential work and the administration and enforcement of specific laws enacted in the interests of the protection of navigation for the removal of sunken vessels and other obstructions ($1,000,000); the protection, clearing, and straightening of channels of navigable waters not specifically authorized by Congress ($50,000); Surveillance of Northern Boundary Waters ($2,835,000) which includes operational activities under provisions of treaties and international agreements for boundary waters of the United States and Canada; and the collection of domestic Waterborne Commerce Statistics ($3,695,000) pertaining to rivers, harbors, and waterways, and compilation and publication of such data. In addition, the amount requested includes funds to reimburse the Bureau of the Census for costs incurred in furnishing the Chief of Engineers complete port and waterway data on the foreign Waterborne Commerce of the United States.

NATIONAL EMERGENCY PREPAREDNESS PROGRAM

Mr. Chairman, with your permission, I would like to emphasize that it is very important to this nation to have an organization such as the Corps which is capable of providing engineering and construction support in event of a catastrophic national emergency. No matter what its origin - a technological accident, a natural disaster, or other national emergency. This capability has been demonstrated time after time throughout our nation's history. World War II, hurricanes Agnes, Frederick, and Hugo, the Mt. St. Helens eruption, the Exxon Valdez oil spill, the Loma Prieta Earthquake, the droughts of 1988 and 1989 are only examples. Preparedness for response to emergencies or disasters is a fundamental governmental obligation and the Civil Works National Emergency Preparedness Program is the mechanism by which we meet part of that obligation. The link between response to floods and coastal storms, other natural disasters, technological hazards, and other national emergencies is often difficult to discern.

The continuation of the drought in parts of the nation, the Exxon Valdez oil spill, Hurricane Hugo, and the Loma Priete Earthquake, all demonstrated the benefits of our preparedness efforts but they also highlighted the shortfalls and provided many lessons learned. The funds requested for the National Emergency Preparedness Program will allow us to maintain our current levels of preparedness.

RECREATION PARTNERSHIPS INITIATIVE

We initiated the Recreation Partnership Initiative in FY 1990 as a three-year effort to the action plan developed by the President's Commission on American's Outdoors. The program is intended to identify and facilitate opportunities for recreation development by private sector investors on Corps project lands, to encourage cooperative partnerships for expansion of recreation opportunities close to population centers, and to organize information on recreation resources and activities on Federal lands for integration in privately operated networks. Through this effort, we hope to stimulate greater private sector involvement in providing public recreational opportunities and infrastructure on Corps project lands. The FY 1991 O&M budget includes $800,000 to continue the program.

POLICY AND PROCEDURE OPTIONS FOR PROJECT O&M

As Secretary Page outlined in his opening remarks, the Corps Operation and

Maintenance program, including O&M, General, and Mississippi River and Tributaries, Maintenance accounts for about 45 percent of the overall Civil Works budget. Moreover, approximately half of the Civil Works workforce is involved in this endeavor. A comprehensive plan of study entitled "Policy and Procedures Options for Operation and Maintenance" is proposed to explore improved ways to provide for continued or enhanced levels of public service in an environment of deficit reduction and budgetary limitations.

The study will cover: productivity of the existing program; intensive management; divestiture; modernization; and program development, execution and monitoring procedures. Investigations will take about one and a half years to complete with results to be implemented in the FY 1994 budget process. The total study cost estimate is $1.5 million. We propose to initiate the study in FY 1990 with $300,000 in available funds and to continue the effort in FY 1991 with the budget request of $1 million.

ACTIVITIES UNDER THE REGULATORY PROGRAM APPROPRIATION

The Regulatory budget request is $75.1 million and compares with $68.5 million in FY 1990. This amount will allow continued emphasis on protection of the Nation's wetlands in support of the President's goal of no overall net loss of wetlands. To that end, we are increasing our enforcement efforts and our training of personnel in wetland delineation and wetland values. Increased enforcement will occur mostly through contracting for surveillance for unauthorized activities, investigation of violations, and inspection of permitted projects for compliance. Our enhanced wetland protection efforts began in late FY 1989 with $2.2 million in supplemental funds for enforcement and wetlands training. To continue this work in FY 1990, we are planning to use $3.9 million originally designated for the administration of bridge permits. These funds were included in the FY 1990 budget in anticipation of legislation transferring this program to the Corps from the U.S. Coast Guard. This legislation, however, is still pending. The FY 1991 budget does not include funds for the bridge function. If legislation is enacted, a budget amendment will be submitted.

We are proposing a major revision in the regulatory fee structure which, as planned, would generate an estimated $17 million in annual revenue. We expect this revision to be complete during FY 1990, and anticipate that the increased revenues would begin in FY 1991. Under the current system, we charge $10 for permits issued to private individuals and $100 for permits issued to commercial applicants. These fees produce only about half a million dollars a year. Under the new system, a fee would be charged at the time of application. Fees would range from a low of $100 for a simple action to a high of $2,000 for permit applications for complex commercial and revenue producing public projects. In addition, we would, for the first time, require fees for public hearings, environmental impact statements, and wetland delineation visits. The new fee system is the product of a Corps special task force on fees which was convened as a result of a recommended changes by the Department of Defense Inspector General. The fees will go through a formal rulemaking process with comments from the public. We expect considerable interest in these proposed changes.

ACTIVITIES UNDER THE FLOOD CONTROL AND COASTAL EMERGENCIES APPROPRIATION

The Fiscal Year 1991 request for Flood Control and Coastal Emergencies appropriation of $25 million provides funds for advance planning and preparedness activities and to meet the emergency response and rehabilitation requirements of a minimal response year. The portion programmed for response requirements is roughly equivalent to half our historic average annual expenditure.

Advance planning and preparedness activities include: review and updating of response plans; training of response personnel; procurement and pre-positioning of critical equipment and supplies not likely to be readily available during the initial stages of response; periodic exercises to test and evaluate plans, personnel, and training; periodic inspections of non-federal flood control works to ensure their viability; and overall management of the response program.

Mr. Chairman, I wish to add my own thank you to that expressed earlier by Mr. Robert Page, Assistant Secretary of Army, Civil Works, for your kind remarks in the Congressional Record of November 20 about the efforts of the Corps. We continue to provide assistance in response to Hurricane Hugo and the Loma Prieta Earthquake. We have supported a variety of agencies; the Federal Emergency Management Agency, Small Business Administration, Department of Defense, Department of Education, and the General Services Administration, and undertaken a variety of new missions. In the Virgin Islands, particularly St. Croix, Corps people are overseeing or directly managing the restoration of the Island's infrastructure and the provision of both temporary and long term housing for the residents as missions for the Federal Emergency Management Agency. We are overseeing a geotechnical evaluation of the increased threat of landslides due to the earthquake in California.

The Corps has been heavily involved in response and recovery operations over the year. Events to which we have responded have included the continuing drought, the Exxon Valdez oil spill, near record flooding on the Red River of the North, near record floods in east Texas, floods in Kentucky, Hurricane Hugo, the Loma Prieta Earthquake, and recent flooding in the Pacific Northwest. However, our efforts under the Public Law 84-99 emergency authority have been relatively limited. In fact, FY 1988 and FY 1989 were the two lowest response years that my staff can recall.

Our FY 1990 Appropriations Request contained no funds for the Emergency Fund, as a repeat of the FY 1988 requirements would be expected to leave adequate resources to meet minimal year requirements. As I noted, FY 1989 repeated the record low expenditures of FY 1988 and we began FY 1990 with a $28.4 million carryover in the Emergency Fund. We have funded our preparedness and planning activities and funds available for emergency response activities equaled about 60 percent of our historic average annual requirement. However, the funded and identified response requirements since September have been nearer the historical average, leaving about $6.1 million to meet unknown requirements. Should significant events occur which require expenditures that exhaust the Emergency Fund, we would transfer funds from other flood control appropriations to meet immediate needs after notifying the Appropriations Committees of our intent.

ACTIVITIES UNDER THE GENERAL EXPENSES APPROPRIATION

The FY 1991 budget request for General Expenses is $136,100,000, an increase of $9,103,000 over the FY 1990 allocation of $126,997,000. The General Expenses appropriation provides for the executive direction and management of the overall Civil Works program through the Office of the Chief of Engineers and the 11 Division Offices. It also funds the Board of Engineers for Rivers and Harbors, the Coastal Engineering Research Board, a portion of the Engineer Automation Support Center, and a portion of the Water Resources Support Center.

The primary purpose of the appropriation is to assure that definitive policy guidance, direction, management, and coordination are provided for all Corps activities toward execution of a comprehensive Civil Works program. The Office of the Chief of Engineers and Division offices have continued to perform at high levels of effort to implement policy developed in response to the Water Resources Development Act of 1986, to develop and explore more efficient, cost effective methods of operation, and to emphasize both program and project management. There has been substantial effort devoted to a reorganization and the development of new operating procedures to decrease the project development life cycle, develop more accurate cost estimates, and to insure that project schedules and cost estimates provided to cost sharing partners are realistic, manageable and managed at all organizational levels.

The increase in the FY 1991 budget request over FY 1990 is based on additional known costs in personnel salaries and benefits, rent, communications, automation operations, training, and ADP equipment procurements. A total of $7.2 million is for increased salary costs. An estimated $1.2 million is due to increased Standard Level User Charges established by the General Services Administration for rent and utilities. The increase in Standard Level User Charges is largely due to two GSA-directed Division office moves into facilities with substantially higher rent and utility costs. Overall GSA rental rates have increased approximately 4.8% over FY 1990.

The FY 1991 budget request includes for the second year, $2.0 million to continue a five-year effort to rewrite outdated Engineer Regulations and Technical Manuals that will provide Corps field offices with guidance for implementation of the Water Resources Development Act of 1986 and more technologically current design and construction standards.

ACTIVITIES UNDER THE REVOLVING FUND

Our FY 1991 Plant Replacement and Improvement Program expenditures under the Revolving Fund for items designed to increase productivity, reduce costs, compensate for reductions in manpower, modernize and improve our equipment and operational capabilities, and increase safety are estimated at $100,000,000. This includes $25,340,000 for 19 new major items, $50,195,000 for the continuing requirements of major items of plant and equipment which were previously justified to the Committee, and $24,465,000 for design, rehabilitation, construction, acquisition, additions and improvements of miscellaneous items of plant and equipment with a total cost of less than $700,000.

As a part of a pilot test, the Corps awarded a contract on October 6, 1989 under the CEAP-IA mainframe hardware acquisition phase of the Corps of Engineers Automation Plan. Installation at the pilot test sites has begun and the test will be complete in July.

A-76 STUDIES

Under the Competition in Government initiative of the Management Improvement Plan for Civil Works, the Corps anticipates conducting A-76 reviews of 858 full-time equivalent work years during FY 1990.

CONCLUSION

Mr. Chairman, this concludes my summary remarks.

General **Kelly**. Thank you, sir.

The total for remaining items in the budget request is $417 million, as indicated on this slide.

GENERAL INVESTIGATIONS

Turning first to the General Investigations account, the breakdown and budget request is as indicated. The items I would like to highlight include a Federal infrastructure strategy effort, continuation of the drought study, our research and development program, a climate change initiative, and our work on magnetic levitation in conjunction with the Department of Transportation.

FEDERAL INFRASTRUCTURE STRATEGY

The budget includes $350,000 to initiate development of a Federal action strategy addressing America's infrastructure problems. Currently, there is no integrated Federal focus on infrastructure issues, and therefore no means to evaluate and implement the recommendations such as those of the National Council on Public Works Improvement contained in its 1988 report, "Fragile Foundations."

I have this particular report, which was published in the spring of 1988. The first-year effort would initiate coordination among Federal study participants, establish a Federal infrastructure advisory board, and lay out a specific course of action to develop a Federal infrastructure strategy.

Members of the board are listed on this slide.

WATER RESOURCES MANAGEMENT DURING DROUGHT

The budget request includes $2.5 million to continue a special study addressing water resources management during droughts. The study is in response to the drought of 1988. We are about four months into the study, and therefore, do not yet have specific recommendations at the present time.

However, we have identified areas where changes to our current response procedures could result in improved drought response. These areas are better cooperation and coordination with States and regional water resource associations, improved advanced planning, better transfer of existing technology to the people who need it, better data sharing and better national water conservation to complement improved water supply management.

RESEARCH AND DEVELOPMENT PROGRAM

I would like to bring to your attention some examples of recent benefits produced by our research and development program.

COASTAL STORM EROSION SIMULATION

Until recently, the simulation of storm erosion and scour was feasible only using very expensive, full-scale wave tanks located in Europe.

The Corps has been able to reproduce in a mid-scale flume at the Waterways Experiment Station the same results on erosion tests as those achieved in a full-scale West German tank facility.

Our new testing approach costs one-twentieth the cost of full-scale testing in European facilities, and allows more economical design of flood protection and storm damage reduction projects. This new Corps capability has been used to study beach erosion problems at Ocean City, Maryland already.

ICE JAM FLOODING—PREVENTION

Research has also provided knowledge on using simple structures to prevent ice jam flooding. One such newly constructed ice control structure on the Allegheny River in Oil City, Pennsylvania, received its best test when the severe cold spell in December 1989 created an extreme ice jam threat to the city. The ice boom causes early formation of ice cover and reduces frazil ice production, the main cause of ice jams.

The structure worked, and Oil City was spared its most costly ice jam flood to date.

GLOBAL POSITIONING

An aggressive development and technology transfer program using the global positioning system for Corps surveying activities has already resulted in annual savings of about $3 million. When fully implemented, the Corps' hydrographic program alone will save $10 to $15 million annually.

CLIMATE CHANGE IMPACT PROGRAM

We are also asking $500,000 in Fiscal Year 1991 to initiate a climate change impact program. This program is designed to respond to the President's initiative on global warming. The purpose of the program is to better enable the Corps of Engineers to develop predictive models and procedures used in carrying out our Civil Works program.

MAGNETIC LEVITATION

Under General Investigations, the Corps of Engineers and the Department of Transportation, in cooperation with several other Federal agencies, have initiated a public-private program to develop a high-speed magnetically levitated and propelled transportation system for the United States.

Our request for Fiscal Year 1991 would provide funds for cost-shared work with private sector partners to develop design concepts and continue work on technical, health, and safety assessments.

The focus of the Corps' efforts will be on the development of U.S. magnetic levitation technologies, while the Department of Transportation's emphasis will be an examination of economic feasibility and establishment of safety and operating criteria.

This slide shows the first prototype which was built in Germany. Interestingly enough, Mr. Chairman, the technology was developed here in the United States in the sixties, and we lost it to the Germans and Japanese.

This is the first prototype that the Germans have put together. There is a similar prototype being developed in Japan. We would like, in partnership with the Department of Transportation, to leap forward and grab the second generation, because the real market for magnetic levitation is in this country.

Mr. **Bevill**. Are you working with the people in Florida who are planning a system?

General **Kelly**. We are. So that is a start.

Mr. **Bevill**. These trains will travel at three hundred miles per hour?

General **Kelly**. Yes, sir. It turns out that any distance under five or six hundred miles at that speed is extremely economical. It probably is the way to go, and will substantially reduce the congestion that we have on highways and at airports.

Mr. **Bevill**. Do you consider the German technology ahead of the Japanese technology?

General **Kelly**. Yes, but the Japanese have an alternative design concept which is a pretty good idea. It has great possibilities. We would like to leap both of them and get into the second generation.

Mr. **Bevill**. That was done, you know, with our subway system. The man that planned it told me that he saw every subway in the world. He got the pluses and the minuses from each one of them and put them together here.

General **Kelly**. Yes, sir. This has fantastic capability for this country.

SECTION 1135

Turning to our Construction General account, I will cover the remaining items, and the breakdown is as indicated on this chart. One item under this account that I am especially proud to highlight is the $5 million we are requesting to initiate work under Section 1135 of the Water Resources Development Act of 1986, allowing us to make project modifications for improvement of the environment.

These funds will be used to carry out a demonstration program of modifications to completed projects. These modifications, which will remain consistent with the original project purposes, will also restore the quality of the environment. The non-Federal share of any such modifications carried out under Section 1135 will be 25 percent.

OPERATION AND MAINTENANCE

Now, the breakdown of remaining items under our O&M account is as indicated on this chart. I would like to bring to your attention two important research and development initiatives.

WETLANDS RESEARCH PROGRAM

We are proposing a new wetlands research program. The research would include improved knowledge of the functions and values of wetlands, predicting and minimizing impacts, wetlands change assessment techniques, and wetlands restoration and creation.

In response to the Nation's heightened consciousness of the importance of preventing further losses of the Nation's precious yet rapidly disappearing wetlands, we have placed this program on a fast track for completion in three years.

REPAIR EVALUATION MAINTENANCE REHABILITATION—REMR

The Repair Evaluation Maintenance Rehabilitation research program was completed in Fiscal Year 1989. Over the next five years, we can expect savings resulting from this program to exceed $200 million. Encouraged by this past success, we have proposed to launch a second REMR program to address new and different needs.

HYDRODYNAMIC COMPUTER CODE

I would like to highlight examples of the success of that first REMR program. A new hydrodynamic computer code called STREMER has been developed to make use of our traditional physical hydraulic models more effectively and at less cost. Use of this technique reduces physical modeling costs by at least 25 percent.

RELIEF WELL CLEANING

The application of the blended chemical high temperature process to cleaning of relief wells at our over 400 flood control structures will extend the typical period between cleanings from three years to four or five years. We expect annual savings of $500,000. If we don't keep these wells clean, then we have a severe safety problem, and that is why we have a periodic cleaning program. This particular initiative has really saved us some effort.

PRECAST STAY-IN-PLACE FORMING SYSTEM

Development of a precast stay-in-place forming system for rehabilitation of navigation lock walls eliminates extensive down time of the locks during repair. This procedure can save up to $1 million per day of lost revenue for commercial shippers.

General Patin testified previously about some of the elderly locks and dams that he has on the Upper Mississippi and the Illinois Rivers. This is a new technique that we use for rehabilitation and the faster that we can do it the more money we will save.

I compliment our R&D folks because they designed a very effective system.

Mr. BEVILL. Was that done at the Waterways Experiment Station?

General KELLY. Yes, sir. You have seen some of those really old locks, and that gets back to the infrastructure issue. We have to do some rehabilitation and this has turned out to be a good approach.

REGULATORY PROGRAM

Our regulatory budget request is $75.1 million, compared to $68.5 million in Fiscal Year 1990. This amount will allow continued emphasis on protection of the Nation's wetlands. To that end, we are increasing our enforcement efforts and our training of personnel in wetland delineation and wetland values.

EMERGENCY RESPONSE EFFORTS

The Corps has been heavily involved in response and recovery operations, both within our own authorities and assisting the Federal Emergency Management Agency over the past year. Events to which we have responded have included the continuing drought, the Exxon Valdez oil spill, near record flooding on the Red River of the North, near record floods in east Texas, floods in Kentucky, Hurricane Hugo, the Loma Prieta earthquake, and recent flooding in the Pacific Northwest.

We began Fiscal Year 1990 with a $28 million carryover in the Emergency Fund. Response requirements since September have been near the historical average leaving only about $6 million to meet whatever requirements occur for the rest of the fiscal year.

GENERAL EXPENSES

Our request for General Expenses includes increases for salaries and rent and the necessary funds to continue our five-year effort to rewrite our technical guidance. The primary purpose of the General Expenses appropriation is to ensure that definitive policy guidance is provided for all our Corps activities under the Civil Works program.

The Corps Headquarters and Division offices have continued to perform at high levels of effort to implement policy developed in response to the Water Resources Development Act of 1986, decrease the project development life cycle, develop more accurate cost estimates, and to ensure that project schedules and cost estimates provided to cost-sharing partners are realistic and managed at all organizational levels.

CORPS HEADQUARTERS

I would like to report that the Administration has determined that the Corps Headquarters should remain in the District of Columbia. I might point out that OMB has committed to work with the Army to find appropriate space here in the D.C. area.

Mr. Chairman, this concludes my summary remarks. As always, my associates and I will be happy to answer your questions.

Mr. BEVILL. Thank you. We will insert the justification material for the Fiscal Year 1991 remaining items in the record at this point, without objection.

[The information follows:]

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1991

SUMMARY OF REMAINING ITEMS

GENERAL INVESTIGATIONS

	FY 1990 Allocation	FY 1991 Request	Increase (Decrease)
	$	$	$
1. Surveys			
c. Special Studies	446,000	2,850,000	2,404,000
e. Cooperation with Other Federal Agencies, States, and Non-Federal Interests	7,996,000	10,250,000	2,254,000
2. Collection and Study of Basic Data			
a. Flood Plain Management Services	6,638,000	9,000,000	2,362,000
c. Other Programs			
(1) Stream Gaging (U.S. Geological Survey)	508,000	600,000	92,000
(2) Precipitation Studies (National Weather Service)	365,000	450,000	85,000
(3) International Waters Studies	980,000	1,100,000	120,000
(4) Hydrologic Studies	232,000	280,000	48,000
(5) Scientific and Technical Information Centers	115,000	130,000	15,000
(6) Coastal Field Data Collection	2,227,000	3,000,000	773,000
(7) Transportation Systems	713,000	850,000	137,000
(8) Environmental Data Studies	241,000	300,000	59,000
3. Research and Development	20,080,000	21,700,000	1,620,000
4. Construction Productivity Advancement Research (CPAR)	3,944,000	5,000,000	1,056,000
5. Climate Change Impact Program	135,000	500,000	365,000
6. Magnetic Levitation Transportation Pilot Program	1,000,000	3,500,000	2,500,000
Total	45,620,000	59,510,000	13,890,000

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1. SURVEYS
   c. Special Studies - NEW

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
Development of a Federal Infrastructure Strategy	$3,350,000	$0	$0	$350,000	$3,000,000

The amount of $350,000 is requested in Fiscal Year 1991 to initiate development of a Federal action strategy for addressing America's infrastructure problems.

Currently there is no integrated Federal policy or strategy to address the Nation's many infrastructure problems, including those involving water resources, transportation, water quality, water supply, energy, and solid and hazardous waste management. The proposed study would address the roles of the various levels of government and the private sector in dealing with these national problems leading to a set of recommended actions and include follow on legislative actions where needed. A Federal infrastructure advisory board would be created to combine the expertise of all of those Federal agencies with responsibilities in infrastructure-related matters. The board would be under the administrative leadership of the Department of the Army and would have responsibility for overseeing the development of the Federal infrastructure strategy. Development of this strategy would assume that the nation's infrastructure needs have already been adequately defined and examine selected strategies including the recommendations of the National Council on Public Works Improvement to determine what actions are needed to move to an implementation phase. This includes clarifying roles for all government levels and the private sector, taking steps to improve the performance of existing facilities, developing a rational capital budgeting process at all levels of government, and providing strong incentives to insure adequate maintenance, use of new technologies, and increased use of low capital technologies to deliver services. The effort would seek means to energize private sector talents and resources in all aspects of the Nation's infrastructure and establish public and private partnerships.

FY 1991. The first year of effort would center on initiating coordination among the Federal study participants and setting up the infrastructure advisory board. That board would be chaired by the Secretary of the Army and made up of representatives from the Departments of Energy, Transportation, Agriculture, Housing and Urban Development, Veterans Affairs, Interior, and Commerce, and the General Services Administration and Environmental Protection

Agency. The infrastructure board would spend the first year laying out a specific course of action required to establish the Federal infrastructure strategy.

FY 1992-1993. The balance of the effort would be spent addressing the following issues:

- What the Federal role in infrastructure should be.
  -R&D, technology transfer
  -catalyst for other levels of government & private sector
  -cost sharing partner
  -program manager/director
- What specific actions the Federal agencies should undertake.
- What the constraints to the Federal roles are and how they are to be dealt with.
- What the state and local government roles should be.
- What role the private sector must play, particularly with regard to investment and financing infrastructure.
- What the value of infrastructure is, what benefits are associated with infrastructure (including economic, social, environmental, and national security benefits) and how these benefits can be used to evaluate and prioritize both public and private investment.
- What new institutions and institutional changes are needed, or, whether adequate results can be achieved within existing institutions.

As with the FY1991 effort, this work will be managed by the Army with support from those federal agencies represented on the Infrastructure advisory board.

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APPROPRIATION TITLE: General Investigations - FY 1991

1. Surveys

c. Special Studies: - Continued

Study	Total Estimated Federal Cost	Allocation Prior FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
National Water Management During Drought	$5,000,000	0	446,000	2,500,000	2,054,000

This study was intitiated in response to the drought of 1988. The purpose of the study is to develop national and regional decision making process and policy for managing water during drought.

FY 1990. During the first year of this study, with input from others in the Federal and non-Federal water resources community, the Corps will, : (a) analyze the short and long term impacts of drought from both a regional and national perspective; (b) investigate and document the nation's existing capacity to deal with droughts, including related water resources infrastructure, drought management practices, and drought contingency plans; (c) identify geographic areas that will be most susceptible to drought; (d) make a preliminary assessment on how decisions about water allocations among competion activities (navigation, irrigation, M&I water supply, etc.) are made during drought; (e) make preliminary judgments about what measures might be implemented to improve the nation's readiness for drought; (f) identify the extent of the Federal and Corps role and interest in these solutions; (g) determine, based on all of the above, the most productive areas for study beyond the first year, and (h) develop a cost esstimate for subsequent years.

FY 1991. The recommendations made and the problem areas identified during the first year of study will be further evaluated during the second and third year of the study. This work would include case studies involving Corps reservoirs which will evaluate methods of allocating water more effectively among competing needs, and will test the potential for solutions which require minimal capital investment, including use of new technologies, risk assessment techniques, and joint operation with non-Corps reservoirs in the same hydrologic basin. The preliminary assesment made during FY 90 on how decisions about water allocations among completed activities are made will be examined in greater detail. These detailed investigations will include examination of the legal, institutional, and analytical foundations for those decisions, discussion of the strengths and weaknesses of the current decision making process, and will identify potential benefits from the use of various analytical techniques.

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In additon to these principal efforts, the Corps may (depending on the findings of the FY 90 investigations) study the advisability of changes in existing technical models, law, policy, or regulations; consider the merits of conducting workshops to extend or improve the drought contigency planning by states and regions; consider establishment of a formal network of Federal, state, regional, local, and academic drought professionals; consider establishment of conservation research and conservation application seminars; and consider establishment of a computer bulletin board system which would allow water managers throughout the country to easily and accurately share the most current data with regard to drought.

FY 1992. Recommendation not implementable from the first and second years of study will be evaluated in more detail to identify solutions and specific actions. Existing models requiring improvements will be further evaluated, and specific recommendations for further action will be made. Some of the case studies begun in FY 91 would be completed during FY 91; the rest would be completed in FY 92. In addition, the third year of study would focus on alternatives which would require institutional changes or greater capital investment, such as the need for additional reservoir capacity. If the case studies conducted in FY 91 demonstrate the potential for more efficient operation and realization of increased benefits, then case studies in other basins will be considered.

The Corps, in coordination with State and local water managers, will also formulate a plan to conduct regional drought response exercises. These exercises would be designed to test and evaluate the limitations of current drought responses capabilities.

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APPROPRIATION TITLE: General Investigations, FY 1991

1. Surveys

e. Cooperation with Other Federal Agencies, States, and Non-Federal Interests

FY 1990 Allocation	$7,996,000	FY 1991 Request	$10,250,000

The amount of $10,250,000 is requested for Corps of Engineers activities required for cooperation with other agencies, involved in water resources activities which are primarily the responsibility of those interests. Explanation of the increase in the request over that for last year are included under individual activities below. The activities are as follows:

(1) The amount of $125,000 is requested to continue field cooperation with the Department of Agriculture (USDA) under the Watershed Protection and Flood Prevention Act of 1954 (Section 5 of PL 566-83), as amended; the Flood Control Act of December 22, 1944 (Section 1 of PL 534-78), as amended; and the National Environmental Policy Act of 1969 (PL 91-190). Executive Order No. 10913, dated 18 January 1961, requires that cognizance be taken of constructed and contemplated upstream and downstream USDA works, and that plans be submitted to the Secretary of the Army for review and comment prior to their transmission to the Congress through the President. As the agency responsible for the flood control features of basin program, the Corps of Engineers must provide the Department of Agriculture with information on proposed Corps projects, including their effect on contemplated watershed programs. The Corps is also required by Section 102 (2)(c) of the National Environmental Policy Act of 1969 to review the environmental impacts which would result from installation of USDA project features. The reduction of $75,000 from the previous request is based on actual workload experienced.

(2) The amount of $125,000 is requested to continue cooperation with the Bureau of Reclamation of the Department of the Interior in preparation of estimates of flood control requirements, and benefits, and reservoir operating criteria for storage reservoirs to be constructed with Federal funds, in accordance with Sections 1 and 7 of PL 534-78 and Section 7 of PL 984-84, as amended. Studies made by the Bureau of Reclamation of the flood control features of proposed reclamation projects are submitted to the Corps of Engineers for review and determination of the flood control benefits. The Corps of Engineers utilizes the data collected by the Bureau but makes an independent evaluation of the project. The report of the Chief of Engineers is used by the Secretary of the Interior in making allocation of project cost to flood control. The reduction of $75,000 from the previous request is based on actual workload experienced.

(3) The amount of $200,000 is requested for cooperation with Federal and state agencies in authorized, but unfunded investigations for cooperation with: River Basin Compact Commissions; Interstate River Basin Compacts; and Regional Planning Commissions. These require Corps representation for cooperation with interagency basin committees and river basin commissions.

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APPROPRIATION TITLE: General Investigations, FY 1991

1. Surveys

e. Cooperation with Other Federal Agencies, States, and Non-Federal Interests (Continued)

(4) The amount of $4,500,000 is requested for field coordination and assistance to States and for cooperation with any State as specified in Section 22 of PL 93-251 in preparation of comprehensive plans for development, utilization, and conservation of the water and related resources of drainage basins located within the boundaries of such State; and to submit to Congress reports and recommendations with respect to appropriate Federal participation in carrying out such plans. Requested funds reflect application, beginning in FY 91, of the beneficiary pay principle this program. It is proposed that the Corps obtain 50% of the total program funds from the states requesting services. This policy is consistent with the cost sharing of other studies which provide projects and services to identifiable beneficiaries that would otherwise have to use the private sector for such services. The costs sharing requirement will be phased in over a three-year period, beginning at 10% in FY 91, 30% in FY 92 and 50% in FY 93.

(5) The amount of $3,400,000 is requested for special investigations. Of this amount, $400,000 provides for; the review of preliminary permit and licenses applications for non-Federal hydroelectric power development either at or affecting Corps water resource projects; and $3,000,000 provides for (1) special investigations and reports of nominal scope prepared pursuant to Congressional and other requests from outside the Corps of Engineers for information relative to projects or activities which have no funds; (2) similar work of detailed scope, as specifically authorized by the Chief of Engineers; and (3) review of reports and environmental impact statements of other agencies. Among the investigations paid for from these funds are reconnaissance investigations of flooding potential and flood damages, bank erosion, drainage, harbor improvements, anchorages, and development of navigation channels.

(6) The amount of $1,000,000 is requested for interagency water resources development. These are Corps of Engineers district activities, not otherwise funded, that require coordination effort with non-Federal interests. These activities include items such as meeting with City, County and State officials to help them solve water resources problems when they have sought advice or to determine whether or not Corps programs are available and should be used to address the problems. The funds would also be used to cover costs of meeting with potential study sponsors prior to budgeting for a study to insure they fully understand study cost sharing and to obtain an indication of their interest in participating in a future study. The increase of $354,000 is due to an increasing interest in cost shared studies.

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APPROPRIATION TITLE: General Investigations, FY 1991

1. Surveys

e. Cooperation with Other Federal Agencies, States, and Non-Federal Interests (Continued)

(7) The amount of $500,000 is requested to complete the current update of the National Dam Inventory for use by Federal and State agencies in conducting effective dam safety programs for the protection of human life and property. The compilation of the National Dam Inventory was authorized by the National Dam Inspection Act of 1972 (Public Law 92-367) as a component of the National Program of Inspection of Non-Federal Dams. The inventory was initially completed in 1975 and updated to contain over 68,000 dams at a cost of $11.4 million during the execution of the inspection program from FY 1978 to FY 1981. The updated inventory served as a reliable and essential data base for conducting the inspection program. State and Federal agencies and private individuals and organizations rely on the inventory data for regulatory and water resources information purposes. The 1981 inventory data have become obsolete and data for dams constructed since 1981 have not been placed in the inventory. The Water Resources Development Act of 1986 (Public Law 99-662, Title XII) amended the National Dam Inspection Act of 1972 to provide for the maintenance of the inventory and periodic publishing of updated information for continuous use. The maintenance is a coordinated effort involving the Corps, other Federal agencies and the State. Federal and State agencies will collect inventory data for Federal and non-Federal dams, respectively, and provide such to the Corps for compiling, editing, storing in the inventory data base, and periodic publishing.

(8) The amount of $200,000 is requested to initiate cooperation with Federal and state agencies in the National Estuary Program (NEP) administered by the Environmental Protection Agency under the Water Quality Act of 1987 (Section 320 of PL 100-4). The NEP is an interagency planning program to develop management plans for nationally significant estuaries designated by the EPA. To date, the following 12 estuaries have been designated under the program: Puget Sound, WA; Delaware Bay and Delaware Inland Bays, DE; New York/New Jersey Harbor, NY-NJ; Sarasota Bay, FL; Santa Monica Bay and San Francisco Bay, CA; Galveston Bay, TX; Albemarle/Pamlico Sound, NC; Buzzards Bay, MA; Narragansett Bay, RI; and Long Island Sound, CT-NY. Four additional estuaries have been named by Congress for priority consideration: Peconic Bay, NY; Massachusetts Bay, MA; Barataria/Terrebonne Bays, LA; and Indian River Lagoon, FL. Because of extensive Corps involvement with Federal water resources projects in the nation's estuaries and other responsibilities in waters of the U.S., the Corps has been asked to participate on the management and technical advisory committees of those NEP estuaries being studied. The requested funds would be used to cover costs of Corps field office meeting attendance, field reconnaissance, and data transfer.

APPROPRIATION TITLE: General Investigation, FY 1991

1. Surveys

e. Cooperation with Other Federal Agencies, States, and Non-Federal Interest (Continued)

(9) The amount of $200,000 is requested to initiate cooperation with Federal and State agencies, and non-Federal interests in support of the North American Waterfowl Management Plan (NAWMP) administered by the Department of the Interior, Fish and Wildlife Service. The NAWMP is an international program designed to reverse downward trends in North America's waterfowl populations by protecting and improving waterfowl habitats nationwide, particularly in 34 areas within the United States identified as being critical to meeting NAWMP goals and objectives. Department of the Army support to the NAWMP is set forth in an agreement signed with the Department of the Interior on January 23, 1989. The Corps of Engineers has broad water resources development responsibilities and authorities, and has stewardship responsibilities for over seven million acres of water and land. Many Corps of Engineers projects contribute directly or indirectly to the habitat base for the nations's waterfowl, and other wetland species. Current and future Corps of Engineer projects are expected to play an even greater role, particularly during years of low rainfall. Also, the Corps of Engineers has recognized extensive environmental engineering and technical expertise and experience that can contribute greatly towards meeting the NAWMP waterfowl habitat improvement goals and objectives. The requested funds would be used to cover costs of Corps of Engineers field office participation in field trips, interagency coordination meetings, and information transfer in response to conditions set forth in the agreement between the Department of the Interior and the Department of the Army.

2. Collection and Study of Basic Data

a. Flood Plain Management Services

SCOPE: This Corps of Engineers program stems from Section 206 of the 1960 Flood Control Act (PL 86-645), as amended, which authorizes the Secretary of the Army to compile and disseminate data on floods and flood damage potential and to provide guidance in their use in flood-related planning to Federal, State and local agencies. This information and guidance supports planning and implementing actions which reduce the flood hazard through wise use of flood plains. Flood Plain Management Services Program activities include responding to Federal and non-Federal requests for flood hazard information, interpretation, and guidance for sites or short reaches of stream or coast and for follow-up technical and planning assistance to communities having basic flood plain information; participating with the Federal Emergency Management Agency and local governments in the conduct of pre-disaster hurricane evacuation and preparedness studies for mobilizing local community responsiveness to natural disasters in high-hazard coastal areas; and the dissemination of guides and pamphlets to convey the nature of flood hazards and to foster public understanding of the options for dealing with flood hazards.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 1991-95) Program Cost (Fed Share only)	$31,900,000
Request for FY 1991	9,000,000
Balance to Complete Five-Year Program after FY 1990	22,900,000
Allocation For FY 1990	6,638,000
Increase of FY 1991 over FY 1990	+ 2,362,000
Average Annual Allocation for FY 1986-90	8,380,000

JUSTIFICATION: The use of flood-related information by and requests for assistance from occupants of flood plain areas continues to increase. Requested funds reflect application of the beneficiary pay principle to this program. It is proposed to obtain 50 percent of the costs of the program by phasing in cost sharing over a three-year period, beginning at 10 percent in FY 1991, 30 percent in FY 1992, and 50 percent in FY 1993 and thereafter. States, communities, private organizations and individuals that request information and assistance, including hurricane evacuation and other preparedness studies, would share in the cost. This policy is consistent with the cost sharing of other studies which provide projects and services to identifiable beneficiaries that would otherwise have to use the private sector for such services.

APPROPRIATION TITLE: General Investigations, FY 1991

2. Collection and Study of Basic Data (Continued)

a. Flood Plain Management Services

ACCOMPLISHMENTS Responses to requests from Federal and non-Federal agencies, communities, firms and individuals for flood-related information, interpretation, and guidance numbered 96,000 during 1989 and related to properties valued at 15 billion dollars. Of the total responses, 64,000 were for technical data and interpretations and 32,000 were for planning guidance to 8,000 Federal, 14,000 public, and 74,000 private recipients. The Corps participated in pre-disaster hurricane evacuation and preparedness studies for high-hazard areas in Louisiana, Massachusetts, Rhode Island, Florida, Alabama, Connecticut, Mississippi, Georgia, Virginia, Maryland, Delaware, New Jersey, New York, Hawaii and Puerto Rico; provided support for updating and improving mathematical models of flood plain hydrology and hydraulics; developed training programs in flood plain hydrology and hydraulics; and prepared flood-proofing studies.

APPROPRIATION TITLE: General Investigations, FY 1991

2. Collection and Study of Basic Data

c. Other Programs
(1) Stream Gaging (U.S. Geological Survey)

SCOPE: The Corps of Engineers cooperates with the U.S. Geological Survey in this effort, and contributes funds for all or a part of the cost of the operation and maintenance of abut 2,400 stations which are of special importance to the corps mission. This cooperative effort is a continuing program which was established in March 1928, so that streamflow data would be available to meet special needs in connection with the Corps water resources responsibilities.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 1991-1995) Program Cost	$ 3,250,000
Appropriation Requested for FY 1991	600,000
Balance to Complete Five-Year Program after FY 1991	2,650,000
Allocation for FY 1990	508,000
Increase of FY 1991 over FY 1990	92,000
Average Annual Allocation for FY 1986-1990	518,000

JUSTIFICATION: The Corps of Engineers makes extensive use of streamflow records in the planning, design, construction, and operation of water resources projects. The basic network of stream gaging stations operated by the Geological survey under its normal functions is inadequate to meet all the special needs in connection with the Corps water resources development responsibilities. Accordingly, a cooperative program was established under which funds are transferred to the Survey to cover partially the cost of operating specific stations. In the optimum development of water resources, it is essential that continuous records of streamflow be maintained at specific sites over a long period of years, in order to provide a reliable measure of water resources available for various uses. This budget item covers only the non-project portion of the cooperative program. To continue the operation of stations of special interest to the Corps, an estimated total of $12,304,900 will be required by the Geological Survey during FY 1991, exclusive of funds received from other cooperative sources. This groups cost will be financed from three sources, as follows: (1) $704,900 appropriated directly to the Survey for use in operating stations required by the Corps; (2) $600,000 under this budget item for transfer to the survey; and (3) $11,000,000 from the Corps funds budgeted elsewhere for authorized projects and studies. The basic program will remain at essentially the same level as in previous years.

ACCOMPLISHMENTS: Records of the streamflow stations supported by transfer of funds, are published in a regular series of reports by the Geological Survey and provide valuable information for use by the Corps as well as other Federal agencies and the general public.

FISCAL YEAR 1991: The budget request for $600,000 in FY 1991 is $92,000 more than for FY 1990 to provide funding for critical gages and to cover cost increases imposed by the Geological Survey.

COORDINATION: This program is fully coordinated with the U.S. Geological survey. Costs for conducting the work are compiled by representatives of the Survey and form the basis for the transfer of funds to that agency.

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APPROPRIATION TITLE: General Investigations

2. Collection and Study of Basic Data

c. Other Programs
(2) Precipitation Studies (National Weather Services)

SCOPE: This item pertains to the Hydrometeorological Studies Program conducted by the National Weather Services for the Corps of Engineers. These studies are conducted by a technical service organization in the National Weather Service that prepares meteorological studies for use by the Corps in planning and designing various types of water resources projects. The Corps annually transfers fund in support of this work.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 1991-1995) Program Cost	$ 2,450,000
Appropriation Requested for FY 1991	450,000
Balance to Complete Five-Year Program after FY 1991	2,000,000
Allocation for FY 1990	365,000
Increase of FY 1991 over FY 1990	85,000
Average Annual Allocation for FY 1986-1990	340,000

JUSTIFICATION: The scientific services provided by the National Weather Services under this program consist of review of the meteorological aspects of storms completed under the Storm Study Program conducted by the Corps, development of probable maximum precipitation estimates for regional and for specific river basins for use in engineering studies, development of meteorological parameters pertaining to hurricanes and other wind and tide phenomena, and other studies necessary to accomplish the Corps' mission. Funds in the amount of $450,000 will be required in FY 1991 to continue the program at a level consistent with Corps needs. The entire cost of the hydrometeorological studies program is funded under this budget item.

ACCOMPLISHMENTS: During FY 1989, the Hydrometeorological Branch of the National Weather Services continued to make progress on major revision of Probable Maximum precipitations (PMP) study for the Northwest States. In addition, preliminary analyses have been made of the convergency component of the 100-year 24-hour precipitation maps for the region for use in development of orograhpic PMP. Another major accomplishment was the completion of the local-storm PMP analysis. This new analysis provides PMP for the entire Northwest regions. Efforts also continued to develop a procedure that will update precipitation frequency data for stations in the Appalachian Mountains. Information has also been reviewed to respond to Corps offices about PMP estimates for locations in Alaska, California, Hawaii, and American Samoa.

FISCAL YEAR 1991: The major effort in FY 1991 will be to complete the PMP study for the Northwest states. The schedule for completion is very tight and considerable testing by Corps and other user agencies needs to be done before the report can be released. The study of the orographic component of PMP for the Appalachians is expected to near completion. Plans are to study data that will provide antecedent precipitation for PMP to support Corps and other agency needs. A major task for this period is to install a capability to automatically process major storm data at the National Weather Services Hydrometeorological Branch. Automated processing of future storm data should reduce storm studies time from a year to one or two months.

COORDINATION: This program is fully coordinated with the National Weather Services.

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APPROPRIATION TITLE: General Investigations, FY 1991

2. Collection and Study of Basic Data

c. Other Programs (Continued)

(3) International Waters Studies

SCOPE: These funds are required for Corps of Engineers field personnel assigned study responsibility to assist the United States Government in meeting obligations and commitments required under provision of treaties and other international agreements between the Governments of the United States and Canada. Such participation by the Corps and other agencies is essential in maintaining full coordination by all interests concerned in the regulation, control, and utilization of the boundary waters.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 1991-95) Program Cost	$1,900,000
Request for FY 1991	1,100,000
Balance to Complete Five-Year Program after FY 1991	800,000
Allocation for FY 1990	980,000
Increase of FY 1991 over FY 1990	120,000
Average Annual allocations for FY 1986-90	876,000

JUSTIFICATION: The $1,100,000 requested in FY 1991 for International Waters Studies, an assignment-type program from the establishing parties, is essential to assure better control, utilization, and the orderly development of the jointly-controlled water resources along the Canadian-United States boundary, in accordance with the provisions of the Boundary Waters Treaty of 1909, the Niagara River Treaty of 1950, the Columbia River Treaty of 1961, and other less formal agreements between the two Governments. Such studies are closely related to the Corps of Engineers' Civil Works program and are summarized in the Assistant Secretary of the Army for Civil Works Annual Report. Also, these studies are of importance in attempting to meet water demands resulting from an expanding economy along the United States-Canadian border. On 1 August 1986 the two Governments sent the the IJC a reference (request for study) on the fluctuating Great Lakes water levels. The reference requests that a full evaluation of the effects/impacts of a range of high and low water conditions in the Great Lakes Basin be conducted, and that the U.S. and Canada jointly come up with recommendations on how to mitigate/alleviate them. The two governments are currently in the second phase of a complex cooperative effort to address the terms of the reference, and this is expected to take two years to complete.

ACCOMPLISHMENTS: Under the Boundary Waters Treaty of 1909, the International Joint Commission (IJC) was established and is empowered to establish local boards to conduct investigations and to assure adherence to orders of approval pertaining to the utilization of boundary waters, as promulgated by the Commission. Since 1914, representatives of the Corps of Engineers have served on IJC Boards. Representatives of other Federal

2. Collection and Study of Basic Data

c. Other Programs (Continued)

(3) International Waters Studies (Continued)

and state agencies having jurisdiction or interests in water and related land resource development along the international boundary also have membership in the U. S. Section of these Boards and Committees. Currently, Corps representatives are serving on the following IJC Boards: St. Croix River, Champlain-Richelieu, Lake Champlain, St. Lawrence River, Niagara, Lake Superior, Great Lakes Diversion and Consumptive Uses, Lake of the Woods, Rainy Lake, Souris-Red Rivers Engineering, Souris River Control, Kootenay Lake, Osoyoos Lake, Skagit River and the Great Lakes Technical Information Network. Under the Columbia River Treaty of 1961, representatives of the Corps serve on the Columbia River Treaty Permanent Engineering Board and the Columbia River Treaty Entities. These members report directly to the governments on the operation of the four Treaty reservoir projects (Mica, Duncan, Hugh Keenleyside and Libby). The Columbia River Treaty Entities are responsible for formulating and executing the operating arrangements necessary to implement and comply with the Treaty. Under the Niagara River Treaty of 1950, a representative of the Corps serves on the International Niagara Committee. This Committee, likewise reports to the Governments, providing monthly data on flows over Niagara Falls and of diversion from the Niagara River and Welland Canal. The Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data is an international group established in 1953. It is composed of representatives of agencies in both countries concerned with the subject of levels and flows in the Great Lakes system and related research. They coordinate such efforts to assure uniformity in the development of basic data and to facilitate exchange of information. A Corps representative also represents the U.S. Government on the International Lake Memphremagog Board.

These various Boards and Committees are responsible for holding joint meetings, reviewing report drafts, correspondence, making field inspections, obtaining, collecting, and analyzing hydrologic and hydraulic data, and reporting of their findings usually resulting in a final printed report from the U. S. and Canadian participants to the establishing parties. The degree of study activity varies from routine to very active depending upon the requirements of the Commission or Treaty under which they were established.

The Corps has heavy involvement both in the administration, conduct and reporting on the IJC reference study on the effects of high and low water on the Great Lakes and means to mitigate the adverse effects. This is evidenced by the U.S. Co-Chairman of the study, the Executive Director of the study, and U.S. Co-Chairman of the Hydrology, Hydraulics, and Climate Group being high-ranking Corps personnel. In addition, a significant number of the U.S. contingent of staff people supporting the Functional Groups working on the effort are also Corps personnel.

APPROPRIATION TITLE: General Investigations, FY 1991

2. Collection and Study of Basic Data

c. Other Programs (Continued)

(3) International Waters Studies (Continued)

The accomplishments to date on the reference study include: the completion of a Progress Report summarizing the tasks accomplishments in Phase I of the Study, including seven subject specific annexes on: (1) Past and Future Water Level Fluctuations, (2) Environmental Features, Processes and Impacts, (3) Interests, Policies and Decision Making, (4) Implications for Water Levels Management, (5) Potential Actions (Measures) to Deal With the Adverse Consequences of Fluctuating Water Levels, (6) and Evaluation Instruments, and (7) an outline of a Public Information Program. The Phase I Report was completed in July 1989 and has been made available to all interested citizens for review and comment. The detailed public comment process will be used in preparing final plans for the execution of Phase II of the Reference Study.

FISCAL YEAR 1991: Phase I identified the priority goals of developing a set of principles to guide decision-making, a strategy that could educe coherent and effective government action and a methodology for evaluating specific local, system wide, and regional measures for scenarios in a broad and systemic context. Phase II shall aim at four collective objectives: (1) a set of binational principles as guides for decision making; (2) an overall strategy and general plan of action; (3) improvements in governance; and (4) refinements in understanding of critical aspects of the system. Included will be specific topical objectives such as improvements in existing Regulatory Plans and creation and refinement of analytic tools, such as a Geographic Information System. Phase II will describe and evaluate alternatives and combinations of alternatives that address the adverse impacts of high and low lake levels. Included will be prototype remedies, consisting of set of measures, suitable for generic local settings, such as urban water fronts, areas of dense recreational use, and environmentally sensitive or vulnerable sites.

APPROPRIATION TITLE: General Investigations, FY 1991

2. Collection and Study of Basic Data

c. Other Programs
(4) Hydrologic Studies

SCOPE: The scope of activities under this item is determined annually from the proposal by field offices to meet high-priority needs. Included is the collection and study of basic hydrologic data which provide information for future use in the design, construction, and operation of water control structures. The program consists of four sub-items: Storm studies, General Hydrologic Studies, Sedimentation Studies, and Streamflow and Rainfall Data,

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 1991-1995) Program Cost	$	1,550,000
Appropriation Requested for FY 1991		280,000
Balance to Complete Five-Year Program after FY 1991		1,270,000
Allocation for FY 1990		232,000
Increase of FY 1991 over FY 1990		48,000
Average Annual Allocation for FY 1986-1990		246,000

JUSTIFICATION:

1. Storm Studies: The Storm Study Program of the Corps is a continuing investigation of major storms for the purpose of accumulating comprehensive rainfall data. These data are required in the evaluation of flood-producing potentialities of river basins, and constitute the major portion of the basic data used in probable maximum precipitation determinations. Funds in the amount of $85,000 will be required in FY 1991 to work on several storm studies. The Part I storm study of the April 1979 event centered over Jackson, Mississippi, is continuing. The Part I study of the July 1979 event that occurred near Alvin, Texas, is also under investigation, with significant progress anticipated during the year and completion expected in FY 1990. Substantial progress is expected on the Part II study of the August 1978 storm located in the vicinity of Medina, Texas. Likewise, the Part II studies of the September 1977 storm on Brush Creek, Missouri-Kansas, and the September 1972 storm on the Nishnabotna River in Iowa will be completed in FY 1990.

2. General Hydrologic Studies: Studies under this sub-item include needed generalized hydrologic analyses of rainfall-runoff relationships, flood frequency, snowmelt studies, model calibrations in urban areas, analyses of past floods, and other studies of related hydrologic nature. Funds in the amount of $100,000 in FY 1991 will be required to continue this sub-item at a level to insure proper and orderly progress. Major effort in the program is the development related to the interagency satellite snow hydrology. A continuing effort involves the Federal-State cooperative study on the foothills of Colorado that was initiated in FY 1978. Three Corps Divisions are actively involved in this unique long-term study effort which has State, Federal, and county participation. A new effort began in FY 1985 on re-examination of water yield and potential reallocation of storage space in Corps' reservoirs.

3. Sedimentation Studies: The program is a continuing effort in which funds are used for conducting non-project sedimentation studies, and for the Corps share of an interagency sediment investigation program. The sedimentation studies include: the collection of suspended and bedload characteristics of natural streams; and laboratory studies. The St. Anthony Falls Hydraulic Laboratory at the University of Minnesota is sponsored by the Interagency Sedimentation Committee and constitutes the major work effort under this sub-item. Funds in the amount of $65,000 in FY 1991 will be required to carry on sedimentation studies at the base level.

4. Streamflow and Rainfall Data: This is a continuing program in which funds are used for installation and operation of streamflow and rainfall gages of a non-project nature that are required by the Corps in addition to the stations in the cooperative programs conducted by the Geological Survey and the National Weather Service for the Corps. Additionally, gages are needed to more accurately predict hurricane surges. An amount of $30,000 in FY 1991 is required by field offices to continue the establishment and operation of these special-purpose gages at the base level, and to purchase additional hurricane-surge gages.

ACCOMPLISHMENTS:

1. Storm Studies: This continuing program was organized in 1939 for the purpose of investigating rainfall from major storms of record throughout the entire United States. The selected storms are analyzed for frequency, associated runoff and precipitation data. These efforts are coordinated with the National Weather Services (NWS) Hydrometeorological Branch and the resulting data from these studies are used in design of water resources project throughout the country. In 1989, Part I of the Storm Study of the September 1977 at Kansas City, Missouri was completed, Part II analyses of this storm is underway. Also, work was completed on Part I studies of August 1987 tropical storm Amelia in Texas. During the period Corps offices have gathered data on other major storms, reviewed the scope and interim results of ongoing studies y NWS on development of standard project and probable maximum storms at various basins throughout the United States and territories.

2. General Hydrologic Studies: Examples of some of the more important studies accomplished under this program are: determination of rainfall-runoff relationship in urban areas; and snowcover surveys. In addition to the continuation of the above general hydrologic studies, emphasis is given to the development of programs for the adaptation of computer techniques to urban areas near Omaha, Nebraska, and a pumping station analysis near Rock Island, Illinois. Work continued on the regional frequency studies for three major river basin in the North Central States. Data collection activities continued on wind speed and directions in Alaska. The long-term foothill streams of Colorado flash flooding project progressed basically as scheduled. Particularly encouraging to date are the data developed of rainfall-runoff on small watersheds and evaluation of flood potential in connection with design of structure located in the flood basin. Work began on the water yeild study.

3. Sedimentation Studies: The majority of funds allotted to this sub-item issued to assist in financing the Corps share of the cooperative Interagency Sedimentation Project at the St. Anthony Falls Hydraulic Laboratory. The small balance of sedimentation funds is allotted for collection of suspended and bedload data.

4. Streamflow and Rainfall Data: Stations funded under this sub-item are generally established and operated several years prior to anticipated authorization for project-type activities, in order to provide a background of observed data on which to base the planning and design of projects. Progress continues on the special gages which are used to obtain hurricane-surge data.

FISCAL YEAR 1991: The appropriation is requested for FY 1991 is required to continue the Hydrologic Studies Program at the level required to meet high-priority needs.

ITEMS		FY 1991	FY 1990
1. Storm Studies		$ 85,000	$ 67,000
2. General Hydrologic Studies		100,000	90,000
3. Sedimentation Studies		65,000	55,000
4. Streamflow and Rainfall Data		30,000	20,000
	TOTAL	$ 280,000	$ 232,000

29 JAN 1990

COORDINATION: The storm studies are prepared by Corps field offices and are reviewed by the National Weather Services in the preparation of probable maximum precipitation estimates for the Corps. The Interagency Sedimentation Project is conducted cooperatively, and jointly funded, by eight Federal agencies. Information concerning streamflow and rainfall data collection by the Corps under this activity is made available to the U.S. Geological Survey and the National Weather Services.

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APPROPRIATION TITLE: General Investigations, FY 1991

2. Collection and Study of Basic Data

c. Other Programs
(5) Scientific and Technical Information Centers

SCOPE: Four information analysis centers (soil mechanics, concrete technology, coastal engineering and hydraulic engineering) all located at the U.S. Army Engineer Waterways Experiment Station, operating in specific technical areas closely related to Civil Works activities, are supporting the information needs of Department of Defense (DoD) engineers an scientists. The function of each center is to acquire, examine, evaluate, and disseminate newly published scientific and technical information generated within the U.S. and abroad.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 1991-1995) Program Cost	$650,000
Appropriation Requested for FY 1991	130,000
Balance to Complete Five-Year Program after FY 1991	520,000
Allocation for FY 1990	115,000
Increase of FY 1991 over FY 1990	15,000
Average Annual Allocation for FY 1986-1990	124,000

JUSTIFICATION: The Department of the Army, through Army Regulations 70-45 and 70-22, has established policies with the objectives of eliminating unnecessary duplication of R&D effort and supporting the information needs of scientists and engineers, and has authorized the formation of centers for analysis of scientific and technical information. The specified information centers critically evaluate the technical validity and merits of published and unpublished research, design, construction and similar technical report publications; and summarize these presenting new, significant, and useful information. The effectiveness of each of the information analysis center activities and services is evaluated annually.

ACCOMPLISHMENTS: At two-month intervals, technical summaries and evaluations of about 10 newly acquired and potentially valuable U.S. and foreign books and reports are distributed within DoD. State-of-the-art surveys, special technical reports, and translations are prepared in repsonse to user requests. Several thousand inquiries (telephone, letters, vists requiring technical reponses are processed annually, and numerous technical evaluations, bibliographies, and reports are prepared. About 80% of the inquiries are generated by Federal and State governmental elements, the balance from private industry and foreign governments.

Technical Field	Subjects	Primary Service Areas
Soil Mechanics	Embankment and foundation engineering, engineering geology	DoD
Concrete Technology	Cements, concrete, aggregates, concrete construction	DoD
Coastal Engineering	Wave action, shore processes, inlet and estuary dynamics, coastal construction	National
Hydraulic Engineering	River, harbor, and tidal hydraulics; flows through pipes and conduits; spillways; hydrodynamics	DoD

Information Analysis

Centers	FY 1990	FY 1991
Soil Mechanics	$ 29,000	$ 32,500
Concrete Technology	29,000	32,500
Coastal Engineering	29,000	32,500
Hydraulic Engineering	28,000	32,500
	$ 115,000	$ 130,000

COORDINATION: The Scientific and Technical Information Centers (as well as Corps Laboratories, and Division and District offices) distribute reports, abstracts and other scientific and technical information to the Defense Technical Information Center (DTIC), and the HQUSACE library, to insure wide circulation and availability. Reports are available for searching throughout the Corps through the Corps Library Program's computer system, LS/2000. DTIC publicizes reports through its own DoD database and forwards the reports to the National Technical Information Service (NTIS), Department of Commerce). NTIS places the reports into a Government-wide retrieval system and makes them available to the U.S. Geological Survey), NTIS distributes monthly compendia of Selected Water Resources Abstracts and an annual cumulative edition, with conveniently-indexed and cross-referenced identification of what is being or has been done in water resources research and related scientific and engineering fields, and by whom, where, and when.

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APPROPRIATION TITLE: General Investigations
2. **Collection and Study of Basic Data**
b. Other Programs
(6) Coastal Field Data Collection

SCOPE: The program is designed to systematically acquire and assemble information required to accomplish the Corps mission in coastal navigation, storm protection, design, construction, operation, maintenance, and comprehensive regional and local coastal planning. Cost-effective mission accomplishment necessitating long-term data that encompass winds, waves, currents, water level, historic trends in shoreline position, variability in beach profile and bottom configuration, sediment characteristics, and geomorphologic data. These data are either not available in existing archives, are of uncertain or poor quality, or are too sparsely distributed temporally and/or spatially to have statistical viability. The required data are regional in nature and not properly chargeable to authorized projects. Sufficient time is not available prior to or during project preauthorization planning studies to accumulate the years of base-line data necessary for adequate assessment of technical,economic, and environmental feasibility. Acquisition of the information will be accomplished through the synonymous execution of complementary items each of which is unique and contributes certain critically needed data. The program is organized into four subitems: (1) wave information studies; (2) wave gaging; (3) beach and nearshore data; and (4) information management.

SUMMARIZED FINANCIAL DATA:

Estimated five year (FY 1991-1995) Program cost	$18,500,000
Allocation Requested for FY 1990	3,000,000
Balance to Complete Five-Year Program after FY 1990	15,500,000
Allocation for FY 1990	2,227,000
Increase of FY 1991 over FY 1990	773,000
Average Annual Allocation for FY 1985-89	$2,044,600

JUSTIFICATION:

1. **Wave Information Studies**. Numerical simulation techniques are used to estimate wave environments including directionality from weather information. Most wave gage data are non-directional; hindcast data provides 20-30 year directional wave statistics. This information is paramount to the functional/structural design and economic evaluation of coastal projects. Additionally, detailed wind information is produced. These data are made available to Corps of Engineers Districts (in addition to reports) through an interactive

user-friendly system, called Sea-State Engineering Analysis System (SEAS), from which most statistical representations desired of waves and water levels can be obtained. Funding required is $800,000.

2. Wave Gaging. High-quality wave data are needed to predict harbor shoaling, harbor oscillation, jetty stabilization, beach erosion, etc. These data are imperative to operational guidance for dredging, navigation, maintenance, etc. Upon acquisition, these data are analyzed and made available to Corps engineers, planners, and managers via computer terminals and in monthly and annual reports. These efforts are coordinated with the National Ocean Survey and the National Weather Service of the National Oceanic and Atmospheric Administration (NOAA), as well as agencies in the States of California and Florida. Data developed from this program are made available to NOAA and the public. Funds in the amount of $1,700,000 will be used to continue wave data collection at existing sites (primarily on the Pacific Coast) and expand the number of gage sites in the Gulf of Mexico.

3. Beach and Nearshore Data.

a. Visual observations of surf conditions and nearshore currents are obtained to provide estimates of sand transport rates along beaches and additional wave data for nearshore areas. Sites are established by Corps Districts (in coordination with State agencies) and data are collected by volunteers.

b. An historical record of past episodic events provides the best prediction of future occurrences. The objective of the effort is to provide the quantity and quality of timely data required to accurately document characteristics and effects of episodic coastal events such as severe storms, tsunamies, etc. Techniques and procedures already developed by R&D efforts will be applied to obtain detailed data on episodic events such as surge level effects on the shore and nearshore areas during hurricanes, northeasters, Pacific storms, and tsunamies. Funds in the amount of $350,000 are needed to collect beach and nearshore data and continue the data collection for episodic events.

4. Information Management. This task objective is to develop a standardized data base so that coastal data formats and analysis procedures are compatible throughout the Corps of Engineers. The value of program data and project-related data is maximized through the use of Corps-wide standards, routine publication of available data (and/or data sources), utilization of a centralized data library, and maintenance of the SEAS system (item 1 above). Principal forms of output are information reports, data resource reports, and computer-based data files. The information management procedures will help avoid intra-agency duplication, minimize data collection efforts, and identify data deficiencies. Funding required is $150,000.

ACCOMPLISHMENTS: The wave information study has resulted in 20 years of simulated directional wave data for the Atlantic, Pacific, and Gulf coasts, a user-friendly computer-based wave data retrieval and analysis system, and 20 years of wind data for the three coasts. Efforts are under way to provide 30 years of directional wave data for the US shores of the Great Lakes. Joint efforts have been established with the States of California and Florida for wave gaging and new gaging efforts are being directed to meet the needs identified in meetings with the field offices. Efforts to reestablish a joint wave gaging program in Alaska have failed. NOAA wave data has been made readily available to Corps offices through the information management system. Wave data have been acquired from CPDC program gages, numerous specific project stations, and from other agencies. A large data base acquired from visual surf and nearshore current observations has been analyzed and disseminated. An information management system was established to handle the simulated wave data, the gaged wave data, the beach and nearshore profile data, and the surf and nearshore current observation data. A laser disk data storage system has been installed to reduce data storage costs. Meetings with District and Division coastal data users have been held to review program efforts and survey their needs.

PROGRAM ITEM	FY 1990	FY 1991
1. Wave Information	$700,000	$800,000
2. Wave Gaging	1,027,000	1,700,000
3. Beach and Nearshore Data	350,000	350,000
4. Information Management	150,000	150,000
	$2,227,000	$3,000,000

APPROPRIATION TITLE: General Investigations, FY 1991

2. Collection and Study of Basic Data

b. Other Programs (Continued)

(7) Transportation Systems

SCOPE: The Transportation Systems Program is required to support Field Operating Agencies (FOAs) in the accomplishment of navigation project benefit/cost analysis. Planning of waterway and harbor navigation projects requires consideration of benefits and costs within the context of not only the water transportation system, but also the total national transportation system. This centrally managed program is a continuing effort that provides analytical techniques and methods, data bases, reports, and services on a Corps-wide basis. The major purpose of the program is to improve the technical quality and accuracy of navigation planning studies, to improve the long-range project and plan formulation for navigation system improvements, to reduce navigation system operating costs and the costs of feasibility studies. The activities of the program include: (1) develop, maintain and improve transportation systems analysis methodology and data bases for inland and deep draft waterway projects; (2) develop and test methodology and data bases to allocate deep-draft traffic to various vessel classes by trade route and consistent with world fleet projections, (3) provide consulting assistance to FOA's in the implementation of analytical methods and the use of data files; and (4) develop and test computer models to evaluate the impact of inland navigation project funding schedules on the Inland Waterways Trust Funds balance.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 1991-95) Program Cost	$4,700,000
Requested for FY 1991	850,000
Balance to Complete Five-year Program after FY 91	$3,850,000
Allocation for FY 1990	713,000
Increase of FY 1991 over FY 1990	137,000
Average Annual Allocation for FY 1986-90	616,000

JUSTIFICATION: The $850,000 requested in FY 1991 for Transportation Systems would be used to continue development of a regional investment planning process for the inland waterways and the development of planning methods, computerized techniques and associated data bases to support FOA project studies. Specifically, $400,000 would be used to update the regional investment planning systems which form the basis for investment planning for the inland waterways. $450,000 would be used to provide vessel operating costs, projection of trade route traffic and ocean fleet forecasts for ocean port studies, development of rail and waterway cost models, update of waterway and fleet data for waterway system models, participation in transportation research needs assessment and priorities by the Transportation Research Board, access to socio-economic data base for field studies update of the trust fund analysis program, and improvements in collection techniques for the Lock Performance Monitoring System.

2. Collection and Study of Basic Data

b. Other Programs (Continued)

(7) Transportation Systems (Continued)

ACCOMPLISHMENTS: System analysis models and supporting data bases have been developed and field tested to accomplish project planning efficiency. Incremental improvements are underway to reduce the cost and data requirements. Additional work to implement a test of a system-wide investment strategy was completed in FY 89. The 1988 Inland Waterway Review, provided an overall summary of waterway traffic trends, lock and segment performance indicators and the planning, design, construction and operations programs on the Inland Waterways. Regional economic impact models have been completed on several Inland Waterways segments.

2. Collection and Study of Basic Data

c. Other Programs (Continued)

(8) Environmental Data Studies

SCOPE: These funds are required to produce efficiencies of project cost and program management. They support and encourage the sharing of environmental data and facilitate the locating of other available information. The aim is to reduce costs, avoid duplication and improve procedures for complying with environmental statutes. Included in the scope of this program are data collections of a general or regional environmental nature, statistical data summaries of regional or national scope, an information system to interface project-funded environmental activities developed by field units with national or regional environmental needs, and predictive models to structure either programmatic or specific environmental data files to the conceptual needs of engineering and/or planning objectives for economies of cost and time. The environmental data include biological, physical, and cultural components, several of which have requirements for periodic reporting on a national basis, and some of which are responsive to the needs of international treaties and/or obligations. The exchange of data is both intra- and inter-agency.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 1991-1995) Program Cost	$1,500,000
Appropriation Request for FY 1991	300,000
Balance to Complete Five-Year Program after FY 1991	1,200,000
Request for FY 1990	241,000
Increase of FY 1991 over FY 1990	59,000
Average Annual Allocation for FY 1986-1990	245,000

JUSTIFICATION:

1. Models for Programmatic and Specific Data: This program area is designed to develop predictive environmental models of general utility to field offices in given regional areas, or nationally, as appropriate. The models are to be based on existing data for the quantification and prediction of future conditions. Examples of such models include a framework model for the prediction of sites of prehistoric occupation within a river basin, land use projections, habitat suitability models for wildlife populations and wildlife management models for completed projects.

APPROPRIATION TITLE: General Investigations, FY 1991

2. Collection and Study of Basic Data

c. Other Programs (Continued)

(8) Environmental Data Studies (Continued)

2. Statistical Summaries and Data Files: This program area is designed to provide specific environmental data summaries and displays to meet headquarters' needs for periodic reporting to higher authority and other agencies, responses to Congressional inquiries, and efficient management of the environmental program through the evaluation of collected data for the purpose of identifying trends, problems, and needs. It emphasizes key variables used in the CEQ report on environmental trends

3. General Environmental Studies: This program area is designed to provide new environmental data which are of general need and utility to the agency but that cannot be efficiently gathered through the funding of specific projects. Additional objectives are to fill regional data gaps and/or time gaps occurring between pre- and post-authorization planning activities, thereby reducing individual study expenditures via the collection of environmental data of broader utility than a single project investigation, and facilitating compliance with environmental laws.

4. Environmental Information Systems: This program area is designed to establish, improve, and monitor the development and trends of environmental data collection within the Corps, and provide for its efficient flow through the agency and to outside users including reporting of trends by CEQ and EPA. The systems provide for the location, classification, and cross-referencing of environmental information packages or files, but do not identify or archive specific bits of data. The systems provide for efficient exchanges of environmental data; serving not only the needs of field and headquarters units, but also those needs external to the Corps.

ACCOMPLISHMENTS:

1. Models for Programmatic and Specific Data: A guidance document of overview and management for cultural properties by all field divisions has been developed and curation guidance is being developed. Coordination continues involving the integration of information and the evaluation of priorities with State Historic Preservation Offices, the National Park Service, and the Advisory Council for Historic Preservation. The test of a habitat management evaluation method developed by the Bureau of Reclamation has been completed in one ecosystem and started in two others. A procedure for evaluation and reporting of wildlife mitigation by management increments has been developed; workshops and discussions are continuing to further its understanding and dissemination.

2. **Collection and Study of Basic Data**

c. Other Programs (Continued)

(8) Environmental Data Studies (Continued)

2. **Statistical Summaries and Data Files**: Statistical summaries are prepared for program and project management needs. Environmental Impact Statement holdings and Corps properties on the National Register of Historic Places are in the Corps' computer-searchable information files and Corps affected items from the National list of endangered and threatened wildlife and plants has been added. The environmental impact statement files are being upgraded for searching and cross referencing by use of key word indicators and data descriptors. The set of Environmental Quality Indicators, developed during the FY 1990 update of CEQ's Environmental Trends, has been adapted for standard use in Environmental Assessments and reporting. Results of the 1980 and 1985 National Survey of Fishing , Hunting and Wildlife Associated Recreation were regionally aggregated and distributed to the field in FY 1990. These and other files of environmental data have been incorporated onto two optical disks for rapid retrieval and low cost data exchange.

3. **General Environmental Studies**: National assessments of the use of microcomputers in cultural and biological environmental studies were held in FY 1986 and reviewed in FY 1987, FY 1988, and FY 1989. A summary report on biological applications was prepared and distributed in FY 1989 and one for cultural resources will be prepared in FY 1990. A review of environmental needs at the two phases of cost-shared water resources project planning was begun in FY 1989.

4. **Environmental Information Systems**: The generation, flow, and archiving of environmental information (EIS, cultural, biological, physical and aesthetic) within and outside the Corps of Engineers continues to be studied and improved. An environmental information coordinator (EIC) established as an adjunct of the Environmental Technical Information System at the Construction Engineering Research Laboratory, is shared, and jointly maintained, with the Army Environmental Office. The use of available environmental information in cost shared planning studies, was discussed at a Corps-wide environmental planning conference in FY 1989. The Corps will work with several states in FY 1990 to try and extend computerized fish and wildlife information systems which were operational in 14 states in FY 1988, and review cultural resource data bases. A major emphasis in 1990 will be to research the description lists and data characterizations used in such documents as Corps EIS's, EA's and special environmental reports.

APPROPRIATION TITLE: General Investigations, FY 1991

2. Collection and Study of Basic Data

c. Other Programs (Continued)

(8) Environmental Data Studies (Continued)

FISCAL YEAR 1991: The appropriation for FY 1991 is required to continue the Environmental Data Studies Program at a level to meet high-priority needs, and provide efficient compliance with Federal environmental statutes.

	Item	FY 1990	FY 1991
1.	Models for Programmatic and Specific Data	$ 50,000	50,000
2.	Statistical Summaries and Data Files	21,000	50,000
3.	General Environmental Studies	70,000	85,000
4.	Environmental Information Systems	100,000	115,000
	TOTAL	$241,000	$300,000

COORDINATION: Coordination, to preclude undesirable duplication and to mutually reinforce environmental studies programs through exchange of data and other information, is regularly effected with all concerned Federal agencies, notably the Bureau of Reclamation, the Bureau of Land Management, the Fish and Wildlife Service, the Soil Conservation Service, the U.S. Forest Service, the National Marine Fisheries Service, the Environmental Protection Agency, the National Ocean Survey, the National Weather Service, the U.S. Geological Survey, and the Council on Environmental Quality. Coordination with State offices, and with independent offices such as the Advisory Council for Historic Preservation and the Office of Marine Mammal Protection, is also done for some programs.

3. Research and Development

The R&D program seeks the solution of problems encountered within the overall Civil Works program which serves the entire array of national, regional, and local needs as related to the beneficial purposes of water and related resources development and management, such as: flood control and damage mitigation by means of dams and reservoirs, levees and floodwalls, channel improvements and diversions, and improved flood plain management procedures and practices; waterborne transportation including harbors, channels, canals, inland, Great Lakes, intracoastal, and coastal waterway improvements for commercial and recreational navigation; and hydropower systems, including pumped storage facilities. Further, it seeks solutions to problems encountered in erosion control and shore protection, including protection and restoration of coastal and Great Lakes shores and beaches, and river channel and bank stabilization; water-oriented recreation; municipal, industrial, and agricultural water conservation and supply; pollution abatement and salinity intrusion control; and preservation of fish, wildlife, aesthetic, water quality, cultural, and other environmental values.

The R&D effort underpins the Civil Works program in improving the Corps of Engineers capability to accomplish its water resources mission and program with optimum effectiveness, economy, and safety, and with serious concern for protection or enhancement of environmental and social values. It is formulated to address priority problems that significantly constrain execution of the existing Civil Works workload, or that are envisaged as that mission and the mix of activities change in response to emerging needs. Some of these evolve from new Executive Orders, legislative requirements levied through other agencies, and regulatory standards imposed against projects constructed prior to establishment of such standards. The Civil Works research program is strongly addressing problems generated by the emphasis on comprehensive planning and concern for mitigation of environmental impact.

If the Corps is to take advantage of rapidly developing technologies and techniques which offer the possibility of significant monetary savings and greater reliability, safety, and overall effectiveness, it must pursue an aggressive R&D effort. The added complexities of environmental and social considerations, energy conservation, and the mounting concern with urban problems necessitate, more than ever, increased emphasis on new approaches and methods. The request for $21,700,000 of General Investigations funds for FY 1991 is a minimum level program to accomplish only the highest priority R&D needs. It provides a modest increase in all research areas.

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The R&D effort is a highly applied effort, utilizing in part products and techniques developed by industry and universities, and adapting them to Civil Works needs. This R&D effort is essentially a "problem solving" process by which the Corps systematically examines new ideas, approaches, and techniques, with a view toward improving the efficiency of its planning, design, construction, operations, and maintenance activities. Results of this work will be incorporated into revisions or additions to Engineer Manuals, Engineer Technical Letters, Guide Specifications, Engineer Circulars, Laboratory Technical Reports, and other means of technology transfer. In considering the Civil Works R&D program against the background of the overall mission it supports, it should be noted that this mission is the most widespread and varied of the several Federal water resources programs. Yet in comparison to many other Federal agencies and private industry, the Corps of Engineers spends very little on R&D.

The Corps manages and conducts Civil Works R&D through its four research centers: the Cold Regions Research and Engineering Laboratory (CRREL) at Hanover, NH; the Construction Engineering Research Laboratory (CERL) at Champaign, IL; the Waterways Experiment Station (WES) at Vicksburg, MS; and the Engineer Topographic Laboratories (ETL) at Fort Belvoir, VA. Some elements of Civil Works R&D are also assigned to the Corps Institute for Water Resources at Ft. Belvoir, VA and the Hydrologic Engineering Center at Davis, CA. Approximately sixty-five percent of the current research effort is accomplished in-house and the remainder is done under contract by universities or private firms.

COORDINATION. Corps representatives attended the Biennial Interagency Research Coordination Conference hosted by the Bonneville Power Administrative in Vancouver, Washington in October 1989. This biennial series has proven to be the most effective single mechanism for interagency coordination to exchange information and eliminate undesirable overlap and duplication of research in engineering fields relating to water resources development. In addition to the primary involvement of the Bureau of Reclamation, TVA, Bonneville Power Administration, and the Corps as the four "member agencies", several other agencies, including the Soil Conservation Service and the Bureau of Mines, contribute. At the conference, the research of each participating agency in several specialized technical fields is examined by the applicable principal researchers, and desirable adjustments in programs and projects are made. In between the biennial conferences, working groups in the various disciplines and program areas meet to report progress and coordinate activities. Corps researchers are in continuous close contact with NOAA, USGS, USCG, NASA, U.S. Nuclear Regulatory Commission, U.S. Navy, Transportation Research Board, Federal Highway Administration, EPA, DOE, and other Federal agencies concerned with civil works missions. Coordination in wastewater management is effected with Federal, State, and local government agencies participating in urban, regional, and area-wide planning. Interagency coordination on remote sensing techniques is accomplished through various continuing and ad hoc groups, including: the Civil Land Satellite Program Board; the LANDSAT Interagency Program Board; and working groups established periodically to address technical or policy issues. Corps representatives, attending professional conferences, symposia, seminars, and workshops in their particular specialties (including the annual Army Science Conference held at West Point, NY, and the Joint Services Civil Engineering Research and Development Coordinating Group), present papers on specific research findings; informally exchange views, experience, and expertise; and renew, reinforce, and expand highly desirable technical communication between active practitioners in the various components of the national and international research community. Corps researchers maintain continuing contact with the research activities of universities and industry through regular membership in such organizations as the American Society of Civil Engineers, the American Concrete Institute, the American Society for Testing and Materials, the International Conference on Coastal Engineering, the American Association of Port Authorities, the Coastal Society, the Offshore Technology Conference, International Society of Soil Mechanics and Foundation Engineering, U.S. and International Committees on Large Dams, the Permanent International Association of Navigation Congresses, and other organizations; assignment to and participation in their various committees, including chairmanship of many of them; and review of reports on research and other presentations contained in the proceedings, journals, and other publications of these organizations and their technical committees. Another activity which provides a good foundation for coordination is the operation of the four Corps Scientific and Technical Information Centers (Soil Mechanics, Concrete Technology, Coastal Engineering, and Hydraulic Engineering). Each of these centers acquires, examines, evaluates, and disseminates newly published and unpublished scientific and technical information generated within the U.S. and abroad.

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1991-1995) Program Cost	$122,700,000
Appropriation Requested for FY 1991	21,700,000
Balance to Complete Five-Year Program after FY 1991	101,000,000
Allocation for FY 1990	20,080,000
Increase of FY 1991 over FY 1990	1,620,000
Average Annual Allocation for FY 1986-1990	19,492,600

CURRENT RESEARCH EFFORT. For management purposes, this R&D effort is broken down into seven Research Areas as noted below:

MATERIALS
- Soils
- Rock
- Concrete
- Structural Engrg
- Electrical/ Mechanical

COASTAL ENGINEERING
- Coastal Flooding & Storm Protection
- Harbor Entrances & Coastal Channels
- Shore Protection & Restoration
- Coastal Structure Eval & Design
- Coastal Geology & Geotechnical

FLOOD CONTROL & NAVIGATION
- Flood Control Structures
- Navigation Hydraulics
- Hydrologic Engineering
- Water Resources of Cold Regions
- Ice Engrg
- Flood Control Channels
- Water Quality

ENVIRONMENTAL QUALITY
- Environmental Impact

WATER RESOURCES PLANNING STUDIES
- Planning Methodologies
- Risk Assessment
- Water Source Interrelationships & Impacts
- Special Tasks

SURVEYING & REMOTE SENSING
- Surveying & Mapping
- Remote Sensing

CONSTRUCTION OPERATIONS & MAINTENANCE
- Construction & Maintenance Management
- Improvement of Operations & Maintenance Techniques
- Long-Term Effects of Dredging Operations
- Natural Resource

RESEARCH AREA	FY 1990 ALLOCATION	FY 1991 PLANNED ALLOCATION
Materials	$ 2,555,000	$ 2,761,000
Coastal Engineering	5,267,000	5,692,000
Flood Control and Navigation	4,361,000	4,713,000
Environmental Quality	1,730,000	1,870,000
Water Resources Planning Studies	1,696,000	1,833,000
Surveying & Remote Sensing	1,081,000	1,168,000
Construction, Operations, & Maintenance	3,390,000	3,663,000
	$20,080,000	$21,700,000

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SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1991-1995) Program Cost	$15,611,000
Allocation Requested for FY 1991	2,761,000
Balance to Complete Five-Year Program after FY 1991	12,850,000
Allocation for FY 1990	2,555,000
Increase of FY 1991 over FY 1990	206,000
Average Annual Allocation for FY 1986-1990	2,494,100

FY 1991 ACTIVITY

The Materials Research Area is concerned with the characteristics, performance, and interaction of materials, both natural and manufactured, that make up significant elements in the construction, operation, and maintenance of projects. This involves consideration of the adequacy of water resources structures with respect to safety against earthquake and hydraulic forces; protection against corrosion by means of paint and material selection; and improved techniques for design and testing of such structures. Additionally, this program has placed primary emphasis on developing computerized structural engineering design and analysis tools for the Corps' field offices. New analysis procedures have been and are continually being developed in computer-aided structural engineering, soil-structure interaction, cellular cofferdams, circular and oblong conduits, floating breakwaters, and seismic response of concrete dams.

1. The Corps research program in the geotechnical area puts primary emphasis on the safety of dams, levees, embankments, and foundations. Some examples of on-going R&D include: Continue development of testing techniques and technology for determining engineering properties of soils containing particles larger than one inch; continue development of methods for evaluating the liquefaction susceptibility of fine grained soils; continue development of soil models that reliably predict prototype performance; continue development of improved, more reliable, more cost-effective and less labor-intensive soil sampling methods and in situ testing techniques; complete development of improved earthquake hazard evaluation procedures for engineering sites; and continue development of methodology to improve estimates of grout take.

2. Improvements in design quality and reduction in cost of construction also are being sought in the materials research area. Examples include: Continue evaluation of cementitious materials other than Portland cement; continue evaluation of improved techniques for testing concrete; continue developing improved, environmentally compatible high performance coatings for hydraulic structures; and complete development of innovative approaches to winter concreting, and continue to investigate the role of microbial organisms in accelerating corrosion of metallic water resource facilities.

ACCOMPLISHMENTS IN FY 1990

1. Earthquake geologic and seismologic evaluation procedures will be provided for estimating site-specific earthquake ground motions for engineering evaluations at major Corps projects.

2. Guidance will be provided for advance evaluation procedures for screening concrete aggregates before use in making cement.

3. Innovative approaches will be developed for enhancing cold weather concrete construction activities.

4. Corps criteria for seismic analysis of concrete dams and appurtenant structures will be completely revised to eliminate inadequacies in current criteria regarding integrated responses of the total structure-reservoir-foundation system.

5. Criteria will be developed for evaluation and mitigation of microbially influenced corrosion in Corps Civil Works structures.

6. Guidelines were published for the use of analytical models to develop more comprehensive and rational design methods for sheet pile cellular cofferdams.

COASTAL ENGINEERING

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1991-1995) Program Cost	$32,186,000
Allocation Requested for FY 1991	5,692,000
Balance to Complete Five-Year Program after FY 1991	26,494,000
Allocation for FY 1990	5,267,000
Increase of FY 1991 over FY 1990	425,000
Average Annual Allocation for FY 1986-1990	5,209,600

FY 1991 ACTIVITY

The Corps of Engineers missions require coastal engineering expertise in the design, construction, operation, and maintenance of three general types of projects or facilities on the U.S. oceanic and Great Lakes shores: harbors and channels for small craft for commercial and recreational fishing; harbors and channels for large, ocean-going vessels for coastal and international commerce; and shore and beach restoration, protection, and stabilization to provide beaches to prevent or lessen hurricane-induced flood damage, erosion damage and to provide recreation. Additionally, coastal engineering expertise is needed to regulate construction in the waters of the U.S. In 1945, Congress directed the Corps to "make general investigations with a view to preventing erosion of the shores of the United States by waves and currents and determining the most suitable methods for the protection, restoration, and development of beaches; and to publish from time to time such useful data and information concerning the erosion and protection of beaches and shorelines as the Board may deem to be of value to the people of the United States" (33 USC 426a). Under the Corps mission of protecting and restoring coastal shores, consideration is given to both structural and nonstructural solutions.

The Corps R&D program develops techniques, equipment, and procedures for determining or predicting waves, currents, and water levels and sediment transport on the open coast, in lakes and in inlets and harbors and for predicting the interactions between shore materials, protective structures, and wave and tide induced currents. Procedures, methods and guidance for effective design, construction and maintenance of coastal structures are also developed. Major thrusts to improve methodologies and designs and to minimize costs of planning, construction, operation, and maintenance functions are:

1. Continue development of methods to estimate the effect of reefs and submerged structures on coastal processes.

2. Continue development of numerical models to predict effect of structures on sediment transport and the shoreline change.

3. Continue development of methods to estimate coastal wave conditions for design and engineering of coastal structures.

4. Continue development of methods to simulate realistic coastal wave condition for laboratory scale model studies of coastal projects.

5. Continue development of design guidelines for predicting shoaling patterns and rates for maintaining a navigation channel on an offshore bar.

6. Continue development of methods to predict interaction between waves and currents at harbor entrances.

7. Continue development of design guidance for rubble structures including the effect of wave grouping.

8. Continue development of procedures to optimize the design of revetments and seawalls.

9. Continue development of a more economic and dependable near shore directional wave gage for use in gathering wave data for monitoring and planning studies.

10. Continue collection of wave, current, water level and beach response data for use in validating models of coastal phenomena so that project design will be based on accurate estimates of forces and design conditions.

11. Improve modeling procedures for estimating waves in harbor areas.

12. Continue development of a model system for simulating coastal processes on a regional basis in order to ascertain possible effects of Corps projects on adjacent areas.

13. Continue to develop methods of estimating scour at coastal structures.

14. Develop a method for obtaining sediment transport rates during storms.

ACCOMPLISHMENTS IN FY 1990

1. Wind wave model including shallow water effects needed for coastal designs added to Corps-wide computer system.

2. Coastal Modeling System containing computation intensive technology for coastal engineering upgraded to the Army Supercomputer Network with 5 new applications included.

3. New method for modeling shoreline movements provided to Corps with regional training workshops.

4. Extensive field and model studies of harbor surge problems performed to improve accuracy of Corps simulation procedures for harbor design.

5. Advanced model for the response of a beach profile to storms needed for beach and dune designs developed.

6. Comprehensive manual provided to the field offices for littoral transport estimation.

7. Standardized microcomputer based system for coastal engineering expanded by 25 percent.

8. First guidance on the design of breakwater armor units based on internal force measurements was provided to the field. This is a technical breakthrough and advance in the state-of-the-art.

9. Measurements of wave breaking and transformation over reefs critical to coastal engineering in Guam, Hawaii, and Puerto Rico/Virgin Islands made.

10. Numerical model of wave-structure interaction developed to supplement physical modeling capabilities.

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FLOOD CONTROL AND NAVIGATION

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1991-1995) Program Cost	$26,649,000
Allocation Requested for FY 1991	4,713,000
Balance to Complete Five-Year Program after FY 1991	21,936,000
Allocation for FY 1990	4,361,000
Increase of FY 1991 over FY 1990	352,000
Average Annual Allocation for FY 1986-1990	4,009,600

FY 1991 ACTIVITY

This research area is concerned with improving cost-effectiveness in design and construction of engineering works for flood control, navigation, and related purposes, including channels and canals, locks and dams, levees and floodwalls, channel and bank stabilization, diversion structures, pumping stations, and hydropower plants and includes efforts on cost shared hydrologic analysis, ice engineering and water quality. Some examples of current activities to improve methods and designs and to minimize costs of planning, design, and construction functions are:

1. Continue development of hydraulic design criteria and procedures manual for improving project design and operations.

2. Continue development of guidance to better define channel dimensions necessary for safe and efficient navigation of inland waterways.

3. Develop guidelines on alluvial river sinuosity to minimize dredging and river training works.

4. Continue to develop improved guidance for design of stable riprap linings for protection of flood control channels with increased emphasis on bend reaches.

5. Continue evaluation of methods for preventing or reducing salinity intrusion problems that occur at control structures or in navigation channels.

6. Continue development of methods to detect and control frazil ice accumulations.

7. Continue development of procedures for solving problems in alluvial flood control channel instability.

FLOOD CONTROL AND NAVIGATION (CONT)

8. Continue to develop techniques to measure soil moisture beneath snow cover, whether frozen or unfrozen, to improve runoff predictions and spring flood estimates.

9. Continue to develop guidance for FOA's on project water quality through studies on reservoir releases, sedimentation-water interactions.

10. Continue development of flood forecasting hardware and software for use in small, local flood warning systems.

11. Continue developing standards for analytical procedures for water and wastewater.

ACCOMPLISHMENTS IN FY 1990

1. Guidance will be developed that addresses the effects of gradation, thickness and side slope on riprap stability in straight and curved channels.

2. Guidance will be developed for using mathematical models of velocities in waterways, numerical tow maneuvering models and a tow simulator for designing and operating in inland waterways.

3. Methods for real-time reservoir regulation for Corps river and reservoir projects will be developed through systems allowing for conversion from manual to computer techniques.

4. Guidance will be provided for Corps users for predicting and preventing flooding covered by ice jams.

5. Procedures will be documented for establishing the effects of roughness parameters (i.e. bed, bank and vegetation roughness and fluid momentum exchange losses) on total hydraulic energy losses. The information will be and to enhance design guidance for stream modification.

6. The Cost Shared Hydrologic Analysis program will be terminated with the production of an Engineer Technical Letter or other appropriate medium.

7. Further guidance for assessing reservoir water quality and mitigating ill effects of water quality will be continually developed.

ENVIRONMENTAL QUALITY

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1991-1995) Program Cost	$10,574,000
Allocation Requested for FY 1991	1,870,000
Balance to Complete Five-Year Program after FY 1991	8,704,000
Allocation for FY 1990	1,730,000
Increase of FY 1991 over 1990	140,000
Average Annual Allocation for FY 1986-1990	1,698,500

FY 1991 ACTIVITY

The Environmental Quality Research Area is concerned with how the construction, operation, and maintenance of Corps water resources projects impact on the environment and the maintenance of national water quality standards. The planning, development, and management of water resources projects require R&D to assure compliance with Federal and State environmental legislation and regulations at a reasonable cost. Many of these recent regulations have tightened the environmental quality standards and constraints on water resources projects, thereby increasing the need for improved capabilities to attain and maintain this higher level of environmental quality. To achieve this objective effectively and economically, the R&D program is concerned with the development of techniques and procedures for assessing, evaluating, and controlling the impacts of Corps activities on the environment. Some examples of these developments are:

1. Continue to develop and test concepts and procedures to preserve archaeological sites as an alternative mitigation strategy.

2. Continue to develop knowledge of processes involved in the erosion of inland shorelines and embankments in cold regions to allow improved project design and operation.

3. Continue development of ecologically sound guidance for Corps planners to assist them in decisions on permits and projects where anadromous fish habitat modification is a key concern.

4. Continue developments to improve the utility, acceptance, and application of habitat-based evaluation methods for fish and wildlife in terrestrial, freshwater, and estuarine systems.

5. Continue development of techniques for low-cost erosion control by using vegetation in association with low-cost structures.

ACCOMPLISHMENTS IN FY 1990

1. The series of Wildlife Management Manuals will be completed providing guidance on biologically sound, technically reliable, and cost-effective management strategies and techniques tailored to Civil Works projects.

2. In cooperation with the U.S. Fish and Wildlife Service a more accurate and cost-effective method for assessing the downstream effect of reservoir operation on aquatic resources was developed for use at Corps projects.

WATER RESOURCES PLANNING STUDIES

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1991-1995) Program Cost	$10,363,000
Allocation Requested for FY 1991	1,833,000
Balance to Complete Five-Year Program after FY 1991	8,530,000
Allocation for FY 1990	1,696,000
Increase of FY 1991 over FY 1990	137,000
Average Annual Allocation for FY 1986-1990	1,526,900

FY 1991 ACTIVITY

The Water Resources Planning Studies Research Area includes research and development activities leading to improvements in both the methods which provide the conceptual basis for conducting Civil Works planning investigations and the analytical techniques which provide the planning tools needed to implement the concepts. Research activities carried out within this program involve integrated consideration of three major scientific areas: natural or environmental sciences; physical or engineering sciences; and social sciences. Specific research studies range from analysis of methods for facilitating public involvement in water resources planning to development of mathematical models for estimating the effects of future urbanization on potential flood hazards. The fundamental objectives of this program are: to increase the knowledge and understanding of the physical, economic, social, and environmental relationships inherent in planning for development and management of the Nation's water resources; and to develop concepts and procedures for incorporating this knowledge into the planning process in a way which provides a better basis for professional, public, and governmental evaluation without producing inordinate increases in planning costs or time. The program is of a continuous nature, but its specific focus at any given time is dictated by problems and needs which result from changes occasioned by: legislative mandates such as PL 92-500; and revisions in broad Federal guidance for water resources planning. Some examples of current activities leading to improvements in both methods and techniques for the Civil Works planning function are:

1. Continue development of a methodology and data base which will enable Corps planners to determine regional development impacts in a consistent and efficient manner.

2. Continue development of a National Economic Development procedures manual.

3. Continue development Financial Analysis manuals for planning.

4. Continue development of procedures for performing risk analysis in water response planning studies.

5. Implement two year DoD directed cold regions construction research program under the US-USSR Agreement on cooperation in the field of housing and other construction.

ACCOMPLISHMENTS IN FY 1990

1. Produce final draft of Appendix of Urban Flood Damage (UFD) document on flood mitigation studies and shore protection manuals. The manuals will provide sound basis for urban planners to develop appropriate and cost-effective techniques for assessing flood damage and developing effective mitigation procedures.

2. Guidelines will be developed in a final report on Waterway Projection Methodology. This will provide methods for systematic evaluation and formulation of inland and deep draft navigation projects.

3. Guidance on the economics of reallocation of reservoir storage will be prepared. This will provide procedures for the economic evaluation of potential reallocations of storage in Corps reservoirs, i.e. cost benefits of reallocation.

4. A technical report demonstrating effective ways to display and describe risk related information such as flood frequencies, levee freeboard, underkeel clearance and channel width was produced to help decision-makers and local sponsors make informed judgments about the acceptability of levels of risk given project alternatives.

SURVEYING & REMOTE SENSING

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1991-1995) Program Cost	$6,603,000
Allocation Requested for FY 1991	1,168,000
Balance to Complete Five-Year Program after FY 1991	5,435,000
Allocation for FY 1990	1,081,000
Increase of FY 1991 over FY 1990	87,000
Average Annual Allocation for FY 1986-1990	1,122,400

FY 1991 ACTIVITY

The Surveying and Remote Sensing Research Area includes research, development, testing, and evaluation activities necessary for new technology in surveying and mapping and in satellite remote sensing to improve Corps functions and minimize costs. The remote sensing portion of this program is a continuing effort to explore fully the numerous technical and economic capabilities that are becoming available. Activities to be addressed include consideration of data element interpretation techniques, data handling, and the contributions of satellite-acquired data to water resources planning and management models. The Corps is exploring the use of the precise measurement and positioning capabilities developed to support the dam safety program and those derived from Army/NASA satellite research and development to meet some of the needs of its water resources program. Research activities in the current program include:

1. Continue development of techniques to integrate remotely sensed data (from numerous satellite and aircraft systems) into Corps hydrologic, environmental and economic models.

2. Continue demonstration of the Global Positioning System (GPS) for use by Corps surveyors as a high-precision and special-purpose survey tool.

3. Continue development of remote sensing techniques to provide accurate coastal engineering data.

4. Continue evaluation of in-situ automated procedures for measurement of hydrologic and environmental parameters.

5. Continue development of a first generation capability to provide flood maps on an emergency basis from NOAA and Landsat satellite digital image data.

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SURVEYING AND REMOTE SENSING (CONT)

ACCOMPLISHMENTS IN FY 1990

1. A technical report or manual will be distributed on the Global Position System used for positioning for hydrographic survey vessels. In hydrographic applications considerable savings will result by eliminating shore stations and calibration points at project sites, as is now the case.

2. A technical report will be drafted on a dual frequency depth measurement system. It will describe a method for use in Corps hydrographic surveys that will record depth during high speed surveys and determine boundaries of areas where low density material (sediment) overlays the defined navigation bottom of a channel.

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CONSTRUCTION, OPERATIONS AND MAINTENANCE

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1991-1995) Program Cost	$20,714,000
Allocation Requested for FY 1991	3,663,000
Balance to Complete Five-Year Program after FY 1991	17,051,000
Allocation for FY 1990	3,390,000
Increase of FY 1991 over FY 1990	273,000
Average Annual Allocation for FY 1986-1990	3,365,700

FY 1991 ACTIVITY

The Corps of Engineers mission responsibilities in the field of water resources development include the primate functions of construction and operation and maintenance (O&M) of water resource facilities, including locks, dams, reservoirs, powerhouse, waterways, levees, floodwalls, bridges, roads, recreation of more than half of Corps Civil Works personnel and an ever-increasing portion of the total Civil Works budget. Although in recent years construction has been decreasing in total volume, it remains a primary Civil Works activity. In order to continue to accomplish these construction and O&M functions in an environment of fiscal and manpower constraints without diminishing serviceability, health, or safety, a broadly-based research and development effort is urgently needed to provide new or improved materials, methods, and techniques to increase efficiency and save manpower and funds while retaining or improving reliability, safety, and overall effectiveness of each project, giving full consideration to environmental and social considerations. Examples of current activities include:

1. Continue to define performance and design techniques for flow training structures in estuarine locations.

2. Continue to develop methods to determine and interpret environmental effect of contaminant mobility, bioaccumulation, and biomagnification of toxic substance in dredged material, focusing on toxic substances chemical processes, including long-term effects, techniques for sampling and measuring low-level toxic substances, and for estimating pollution potential of area discharge.

3. Continue the development and evaluation of control measures for reducing contaminant release into the environment during dredging, transport, and placement of contaminated dredged material.

4. Continue development of improved natural resources management and planning procedures to allow alternative management scenarios and impacts to be evaluated.

5. Continue development of modified operating procedures to improve recreation at Corps low-head hydraulic projects.

6. Continue development of techniques for removing sand waves from navigation channels.

7. Complete development of instruments to measure sediment behavior near the beds navigation channels.

8. Continue development of guidance for the application of advance maintenance dredging to riverine navigation channels.

9. Continue the development of new equipment and the modification of existing equipment and techniques for dredging contaminated sediments.

ACCOMPLISHMENTS IN FY 1990

1. Improved technology and guidance was developed to assure the most efficient use of training structures in maintaining navigation channels and basins.

2. Guidance will be prepared for procedures for mitigation of sand waves in navigation channels. Using this technology will reduce channel maintenance costs.

3. Methods will be developed for calculating the rate of contaminant release from sediment resuspension by dredges and subsequent reduction of undesirable releases into the environment during dredging, transport and placement of contaminated dredged material.

4. Guidance will be developed for determining and documenting levels of heavy metals and other undesirable compounds that are bioaccumulated from dredged material by salt and freshwater organisms causing adverse effects on reproduction and survival. These methods are required by the Ocean Dumping and Clean Water Acts.

5. Procedures will be developed for measuring the economic impacts of Corps managed recreation developments on local, regional and national establishments, industries and economies.

6. A field method will be developed for using state-of-the-art procedures for improved monitoring techniques and equipment for open water dredge disposal sites.

APPROPRIATION TITLE: General Investigations, FY 1991

4. Construction Productivity Advancement Research

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1991-1995) Program Cost	$29,000,000
Allocation Requested for FY 1991	5,000,000
Balance to Complete Five-Year Program after FY 1991	24,000,000
Allocation for FY 1990	3,944,000
Increase of FY 1991 over FY 1990	1,056,000
Average Annual Allocation for FY 1989-1990	3,472,000

JUSTIFICATION

Studies by the National Research Council, the Office of Technology Assessment and others have shown that the construction industry has historically spent very little for research and development. The construction industry spends only 0.39 percent of sales on research and development, which is less than any other mature industry spends. The lack of research and development in the construction industry has resulted in falling productivity, higher construction costs, and a loss of competitiveness by the U.S. construction industry, both at home and abroad. Advancing construction productivity would reduce federal construction program costs, and projects not now economically feasible might become feasible due to lower construction costs. Cost savings would accrue directly to the federal government's construction program as well as benefit the construction industry and the U.S. economy in general. In response to these needs, the Construction Productivity Advancement Research (CPAR) program was authorized in PL 100-676, the Water Resources Development Act of 1988. The purpose of the CPAR program is to develop and rapidly apply state-of-the-art and advanced technology to reduce construction costs and increase productivity.

MAJOR FEATURES OF THE FY 1991 PROGRAM: The Construction Productivity Research Program is a Corps-Industry cost-shared research program. Continuation of cost-shared research efforts in each of the following areas is anticipated.

1. Engineering and Design Improvement: Including potential individual research efforts in such topics as total integrated design systems, computer-aided engineering tools, and knowledge-based costs systems.

Construction Productivity Research Program (Continued)

2. Improved Construction Site Productivity: Including potential individual research efforts in such topics as automated construction, robotics in construction, automated inspection and quality control, cold weather construction, and construction management.

3. Advanced Materials: Including potential individual research efforts in such topics as high-performance cementatious materials, structural polymers, geomodifiers and geotextiles, and improved adhesives and fasteners.

4. Technology Transfer Management: Including potential individual efforts in field demonstration projects, user-based technology transfer, accelerated industry wide acceptance of new methods and materials by specification and code organizations.

ACCOMPLISHMENTS FOR FY 1990: None. This is a new program. Work was begun under FY89 funding in September 1989. None of the FY 1989 or FY 1990 - funded projects have been completed.

5. Climate Change Impact Program (New)

The amount of $500,000 is requested in Fiscal Year 1991 to initiate a climate change impact program.

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
Climate Change Impact Program	$4,630,000	---	$135,000	$500,000	$3,995,000

This program is designed to respond to the President's initiative on global warming expressed through the Intergovernmental Panel on Climate Change (IPCC) and the Federal Coordinating Council for Science, Engineering and Technology in the Executive Office. The purpose of the program is to enable the Corps of Engineers to develop predictive models and evaluation techniques and procedures that will assist project analysis to formulate and evaluate cost effective solutions and coordinated response strategies under conditions of climate uncertainty. Methods will also be developed to aid the planning and design of new water management projects as well as for the effective operation and maintenance of existing projects.

FY 1990. The first year of the program was funded by a reallocation of existing research funds to enable the Corps to participate in a wide range of activities and requisite studies that comprise the IPCC program. Funds will be used to conduct a number of overview studies related to the state of knowledge and future research requirements concerning the impacts of potential climate change on the Corps programmatic responsibilities. The funding will also enable the Corps to meet its extensive coordination review and report writing obligations as co-chair of several working groups of the IPCC. These include the climate impacts and response strategies workgroups for water resources and sea level rise respectively. The Corps is also involved in ten other workgroups, for which it also contributes relevant information.

FY 1991. In the first full year of the research program the Corps research laboratories will initiate a diverse program of research tasks that capitalize on the assets and capabilities already in place in the form of existing data bases, case studies and predictive models. The program will focus on predictive models of the physical effects of climate change (rainfall, run-off, snowpack, sea level rise extent, etc.); analysis of the physical, socioeconomic and environmental impacts on existing water management systems; and the development of appropriate evaluation techniques for determining cost effective management measures for future planning, design, operations, and regulatory purposes.

The Climate Change Impact Program encompasses more than the traditional basic and applied research approach geared toward understanding and predicting natural processes. It will address not only the applied science aspects, but also key technical design and evaluation practices that form the basis for choosing cost-effective measures from among a broad array of available options. There are also policy issues that must be considered and evaluated simultaneously with the initiation of research tasks. Initially, the program will focus on an understanding of the results of General Circulation Models as they relate to water resources and sea level rise. Case studies will be initiated in order to examine the performance sensitivity of existing projects to climate change variability. Existing predictive models for coastal erosion, storm surges, shoaling and sediment transport, reservoir thermal stratification, permafrost, water shed run-off, water use and socioeconomic forecasting will be examined for opportunities to adapt them for use in climate change impact analysis. The first year will focus on existing water resources and coastal protection projects and water control systems. The studies will be coordinated through HQUSACE and conducted primarily by the Institute for Water Resources, Hydrologic Engineering Center, the Coastal Engineering Research Center, Hydraulics Laboratory, and Environmental Laboratory at the Waterways Experiment Station, and the Cold Regions Research and Engineering Laboratory.

6. Magnetic Levitation Transportation Pilot Program

The amount of $3,500,000 is requested in Fiscal Year 1991 to continue development of a pilot program for a high speed, magnetically levitated and propelled transportation system (MAGLEV Pilot Program).

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
MAGLEV Pilot Program	NOTE	$0	$1,000,000	$3,500,000	NOTE

NOTE: Federal cost for fiscal years beyond FY1991 cannot be provided until a cost sharing arrangement with the private sector is defined.

The MAGLEV concept uses magnetic forces to levitate, guide and propel vehicles above a guideway at speeds in excess of 300 mph. The concept was created in the U.S., but Federal research on MAGLEV was terminated in 1975. Since that time, operational prototype systems have been constructed in Germany and Japan and full-scale commercial operations may be anticipated in the 1990's. The intent of the pilot program ultimately is to develop an operational U.S. MAGLEV system, based on second-generation technology, that would offer significant advantages over existing foreign systems and would utilize U.S. strengths in superconductivity and composite materials. MAGLEV offers the potential to meet future U.S. transportation needs, particularly for the segment presently served by short-haul airlines. The initial phase (FY90) of the pilot program consists of development of a detailed implementation plan for the pilot program. The second phase (FY91-92) of the pilot program includes the preparation of concept designs. The detailed design, construction, operation, testing and evaluation of the vehicle/guideway system would take place in subsequent years (FY93+), and would be undertaken with the substantial technical and financial involvement of the private sector. Cost estimates and schedules for the program in FY92 and subsequent years will be developed as part of the implementation plan.

FY1990. During the first year of effort on the MAGLEV Pilot Program, five major tasks are scheduled: preparation of a detailed implementation plan; development of system parameters; establishment of a Federal interagency MAGLEV committee; expanded dialog with U.S. private industry via industry workshops; and initiation of a preliminary study of magnetic field effects to provide information for subsequent design work. The implementation plan will include a comprehensive work plan for the entire pilot program, information on the structure of the interagency team and a proposal for private sector involvement, including industry cost sharing. The Corps would serve as co-chair, with the Federal Railroad Administration, of the interagency coordinating committee.

FY 1991. During the second year, the Corps proposes to enter into cost sharing agreements with private sector partners to develop concept designs for second-generation U.S. MAGLEV systems. Various technical studies and health/safety assessments will continue. As with the FY 1990 effort, the Corps will coordinate this effort with the work of other Federal agencies, in particular the Federal Railroad Administration and the Department of Energy.

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Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1991

SUMMARY OF REMAINING ITEMS

CONSTRUCTION, GENERAL

	FY 1990 Allocations $	FY 1991 Request $	Increase (Decrease) $
2. Navigation Projects			
a. Channels and Harbors			
(II) Projects Not Specifically Authorized by Congress (Sec. 107, P.L. 86-645)	13,399,000	15,000,000	1,601,000
(III) Mitigation of Shore Damages Attributable to Navigation Projects (Sec. 111, P.L. 90-483)	447,000	500,000	53,000
c. Inland Waterways User Board (Sec. 302, P.L. 99-662)			
(I) Board Expenses	18,000	25,000	7,000
(II) Corps of Engineers	89,000	160,000	71,000
3. Alteration of Bridges	0	0	0
4. Beach Erosion Control Projects			
b. Projects Not Specifically Authorized by Congress (Sec. 103, P.L. 87-874)	2,233,000	3,000,000	767,000

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Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1991

SUMMARY OF REMAINING ITEMS

CONSTRUCTION, GENERAL

	FY 1990 Allocations $	FY 1991 Request $	Increase (Decrease) $
5. Flood Control Projects			
a. Local Protection			
(II) Projects Not Specifically Authorized by Congress (Sec. 205, P.L. 80-858)	26,797,000	30,000,000	3,203,000
(III) Emergency Streambank and Shoreline Protection (Sec. 14, P.L. 79-526)	8,932,000	10,000,000	1,068,000
(IV) Snagging and Clearing (Sec. 208, P.L. 83-780)	894,000	500,000	(394,000)
10. Project Modifications for Improvement of the Environment (Sec. 1135, P.L. 99-662)	0	5,000,000	5,000,000
12. Aquatic Plant Control Program	7,452,000	8,500,000	1,048,000
14. Employees' Compensation (Payments to Department of Labor)	13,117,000	14,930,000	1,813,000
TOTAL	73,378,000	87,615,000	14,237,000

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APPROPRIATION TITLE: Construction, General, FY 1991

2. Navigation Projects

a. Channels and Harbors

(II) Projects not Specifically Authorized by Congress (Section 107, PL 86-645, as amended)

FY 1990 Allocation $13,399,000 FY 1991 Request $15,000,000

GENERAL: Section 107 of the River and Harbor Act of 1960 (PL 86-645), as amended, authorizes up to $35,000,000 annually for construction of navigation projects where such construction is not already specifically authorized by Congress. Projects are designed to provide the same complete navigation project that would be provided under regular authorization procedures. Each project selected must be economically justified and complete-within-itself. Federal cost participation cannot exceed $4,000,000 per project.

BUDGET REQUEST: Funds in the amount of $15,000,000 are requested for Fiscal Year 1991 to continue the Section 107 program of development and construction of navigation projects at locations throughout the Nation.

(III) Mitigation of Shore Damages Attributable to Navigation Projects (Section 111, PL 90-483)

FY 1990 Allocation $447,000 FY 1991 Request $500,000

GENERAL: Section 111 of the River and Harbor Act of 1968 (PL 90-483), as amended, authorizes the construction of projects for the prevention or mitigation of shore damages attributable to Federal navigation works. The cost of installation, operation, and maintenance shall be borne entirely by the United States. Projects first cost shall not exceed $2,000,000 without specific authorization by Congress.

BUDGET REQUEST: Funds in the amount of $500,000 are requested in Fiscal Year 1991 to continue the program of mitigation of shore damages attributable to Federal navigation works.

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APPROPRIATION TITLE: Construction, General, FY 1991

2. Navigation Projects

c. Inland Waterways Users Board

FY 1990 Allocation $107,000 FY 1991 Request $185,000

The amount of $185,000 is requested for support, operations and expenses of the Inland Waterways Users Board, established by Section 302 of the Water Resources Development Act of 1986 (PL 99-662) and pursuant to the Board's charter, approved by the Secretary of the Army on March 3, 1987. The Board is an advisory committee subject to the requirements of the Federal Advisory Committee Act (PL 92-463).

(1) The amount of $25,000 is requested to meet the estimated expenses of the eleven member Board for its travel, meeting and other needs to meet the requirements of the Charter.

(2) The amount of $160,000 is requested for Corps of Engineers expenses related to its responsibilities as an advisory committee sponsor. The Director of Civil Works has been designated Executive Director to the Board, and he has been designated staff members to provide continuing Board support. Corps expenses will include personnel costs for administrative Board meeting support, including staff travel, clerical, printing,and related materials.

APPROPRIATION TITLE: Construction, General, FY 1991

3. Alteration of Bridges

FY 1990 Allocation	$0	FY 1991 Request	$0 (See Budget Request below)

GENERAL: The Department of Transportation (DOT) Act of 1966 transferred the function related to alteration of bridges and causeways over navigable waters of the United States determined to be unreasonable obstructions to navigation from the Corps of Engineers to the Coast Guard in order to locate all transportation related functions with the new DOT. Responsibility for regulating the construction of all other structures in or over navigable waters and for dredging and filling in navigable waters remained with the Corps. Since then, the Clean Water Act and the National Environmental Policy Act have created an overlap of responsibility between the two agencies in that bridge and causeway construction invariably involved permitting action by both agencies before construction could begin. This division of responsibility created a process which appeared to be unnecessarily cumbersome for permit applicants as well as administratively inefficient for the Federal Government. By transferring the alteration of bridges function back to the Corps, all bridge construction related to projects in or over the navigable waters of the United States will be administered by a single agency. The Administration has proposed legislation to transfer the alteration of bridges function from the Coast Guard back to the Corps of Engineers.

BUDGET REQUEST: Funds in the amount of $2,000,00 will be requested in a budget ammendment upon enactment of legislation transferring the alteration of bridges function from DOT to the Corps for Fiscal Year 1991 to initiate construction of the alteration of the Norfolk and Southern Railroad Bridge at Hannibal, Missouri.

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APPROPRIATION TITLE: Construction, General, FY 1991

4. Beach Erosion Control Projects

b. Projects Not Specifically Authorized by Congress (Section 103, PL 87-874, as amended)

FY 1990 Allocation $2,233,000 FY 1991 Request $3,000,000

GENERAL: Section 103 of the River and Harbor Act of 1962 (PL 87-874), as amended, authorizes up to $30,000,000 annually for construction of shore and beach restoration and protection projects where not already specifically authorized by Congress. Projects under this special authority are formulated to provide the same complete project and same degree of protection provided under regular authorization procedures. Each project selected must be economically justified and complete-within-itself. Federal cost participation is limited to $2,000,000 per project.

BUDGET REQUEST: Funds in the amount of $3,000,000 are requested for Fiscal Year 1991 to continue the Section 103 program of development and construction of flood, hurricane and storm damage protection measures along the Nation's shorelines.

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APPROPRIATION TITLE: Construction, General, FY 1991

5. Flood Control Projects

a. Local Protection

(II) Projects Not Specifically Authorized by Congress (Section 205, PL 80-858, as amended)

FY 1990 Allocation $26,797,000 FY 1991 Request $30,000,000

GENERAL: Section 205 of the Flood Control Act of 1948 (PL 80-858), as amended, authorizes up to $40,000,000 annually for construction of flood control projects where such construction is not already specifically authorized by Congress. Projects are designed to provide the same complete project and same degree of protection provided under regular authorization procedures. Each project selected must be economically justified and complete-within-itself. Federal cost participation is limited to $5,000,000 per project.

BUDGET REQUEST: Funds in the amount of $30,000,000 are requested for Fiscal Year 1991 to continue the Section 205 program of development and construction of flood damage prevention projects at locations throughout the Nation.

(III) Emergency Streambank and Shoreline Protection (Section 14, PL 79-526, as amended)

FY 1990 Allocation $8,932,000 FY 1991 Request $10,000,000

GENERAL: Section 14 of the Flood Control Act of 1946 (PL 79-526), as amended, authorizes up to $12,500,000 annually for the construction of emergency bank protection works to prevent flood damages to highways, bridge approaches, public works, churches, hospitals, schools and other non-profit public services. Federal participation under this authority is limited to a cost of not more than $500,000 at any single locality. Each project selected must be economically justified and complete-within-itself. Work under this authority prevents flood damages to the above mentioned items that represent significant investments of Federal, State, and local funds and are a general benefit to the entire locality.

BUDGET REQUEST: Funds in the amount of $10,000,000 are requested in Fiscal Year 1991 to continue the program of emergency bank protection construction to prevent flood damages to highways, bridge approaches, and essential public facilities at locations throughout the nation.

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APPROPRIATION TITLE: Construction, General, FY 1991

5. Flood Control Projects

a. Local Protection (Continued)

(IV) Snagging and Clearing (Section 208, PL 83-780, as amended)

FY 1990 Allocation	$894,000	FY 1991 Request	$500,000

GENERAL: Section 208 of the Flood Control Act of 1954 (PL 83-780), as amended, authorizes up to $7,500,000 annually for removing accumulated snags and other debris, and clearing and straightening of the channels in navigable streams and tributaries thereof, when in the opinion of the Chief of Engineers such work is advisable in the interest of flood control. Federal cost participation under this authority is limited to a cost of not more than $500,000 for any single tributary. Each project selected must be economically justified and complete-within-itself.

BUDGET REQUEST: Funds in the amount of $500,000 are requested in Fiscal Year 1991 to continue the program of channel clearing in the interest of flood control at locations throughout the Nation.

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APPROPRIATION TITLE: Construction, General, FY 1991

10. Project Modifications for Improvement of the Environment (Sec. 1135, PL 99-662)

FY 1990 Allocation	$0	FY 1991 Request	$5,000,000

GENERAL: Section 1135 of the Water Resources Development Act of 1986 (PL 99-662) authorizes up to $25,000,000 to review the operation of Corps water resources projects to determine the need for structural or operational modifications for the purpose of improving the quality of the environment in the public interest, and to carry out a demonstration program of such modifications that are feasible and consistent with authorized project purposes. The non-Federal share of the cost of any modifications will be 25 percent.

BUDGET REQUEST: Funds in the amount of $5,000,000 are requested for Fiscal Year 1991 to initiate demonstration projects under Section 1135. Funds included in this request are sufficient to provide three quarters of the initiation costs; the balance of the initiation costs will be provided by the non-Federal sponsor.

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APPROPRIATION TITLE: Construction, General

12. Aquatic Plant Control Program

AUTHORIZATION: Section 104 of the River and Harbor Act of 1958, (P.L. 85-500), as amended by Section 104 of the River and Harbor Act of 1962, (P.L. 87-874), Section 302 of the River and Harbor Act of 1965 (P.L. 89-298), and Sections 103, 105, and 941 of the Water Resources Development Act of 1986 (P.L. 99-662).

SUMMARIZED FINANCIAL DATA:

Estimated (FY 1991-95) Program Cost	$47,500,000
Allocation Requested for FY 1991	$ 8,500,000
Balance to Complete Program after FY 1991	$39,000,000
Allocation for FY 1990	$ 7,452,000
Increase in FY 1991 from FY 1990	$ 1,048,000
Average Annual Allocation for FY 1986-1990	$ 7,729,000

JUSTIFICATION: An estimated 1.6 million acres nationwide are now infested with problem aquatic plants. The potential spread of the plants is over several million acres. Eurasian watermilfoil, waterhyacinth, alligatorweed, and other exotic species continue to expand from local infestations, many of which are already interfering with navigational and recreational use. New colonies of objectionable aquatic plants continue to be found, such as hydrilla in the Potomac River and the Chesapeake Bay and Eurasian watermilfoil in the Northwest. Uncontrolled infestations of aquatic plants will obstruct navigation, flood control, drainage, irrigation, water supply, and other water management activities and uses. Substantial increases of aquatic plant growth during 1989 because of an unusually wet spring and summer have resulted in a significant increase in requests for assistance from states and their political subdivisions.

ACCOMPLISHMENTS: Funds appropriated in prior years have permitted control of major infestations of noxious aquatic plants in critical areas. The program involves control operations, research, surveys, and the corequisite planning in 20 states, Puerto Rico, and the District of Columbia. The joint efforts of the U.S. Army Corps of Engineers and states have effected considerable success in the control of aquatic plants, especially waterhyacinth and alligatorweed in the Southeast. Control programs have reduced plant problems in many areas to the nuisance level.

The Aquatic Plant Control Research conducted under this program is producing information on the physiological requirements of noxious aquatic plants and is producing new biological, chemical and mechanical technology for their control. The research program has identified two weevils, a moth, a beetle, and a fungus as biological control agents. Biological research programs continued with field test releases of insects that may help control aquatic plants. Species of two weevils and a fly that are host specific to noxious aquatic plants

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were released and monitored in Florida through a cooperative agreement with the USDA. All such species must pass the USDA's rigid quarantine program and be certified for release prior to field testing.

The U.S. Army Corps of Engineers Waterways Experiment Station continues to transfer information concerning new techniques and tools to users at the Federal, state, and local levels quickly and effectively.

FISCAL YEAR 1991: The $ 8,500,000 requested for FY 1991 will be used to continue efforts in control operations, planning, research, and information transfer. Local interests furnish at least 50 percent of the cost for development of control plans (Aquatic Plant Control Design Memorandums) and for control operations and agree to hold and save the United States free from claims. The requested funds will be allocated as follows:

a. Applied Research. $3,500,000 will be used for continued efforts in control operations, planning, information transfer, and research, including support of the TVA effort on Lake Guntersville. Current research efforts include the study of biological, chemical, mechanical, and integrated control measures. Research efforts are fully coordinated with other Federal, state, and local agencies to prevent duplication of effort and to ensure that research under this program is consistent with, and complementary to, the research efforts of others.

b. Control Operations. $4,848,000 will be used for cost shared control operations. Several new local interests are entering into local cost-sharing agreements to control critical areas of existing aquatic plants and new populations with demonstrated potential to increase beyond the maintenance level, and to continue the control of aquatic plant populations that have been successfully reduced to maintenance levels.

c. Planning. . $152,000 will be used for investigations of newly identified problem areas, preparation, as appropriate, of Reconnaissance Reports, Aquatic Plant Control Design Memorandums, development of Local Cooperative Agreements, and for coordination with other Federal agencies, states and their political subdivisions.

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APPROPRIATION TITLE: Construction, General

	FY 1989	FY 1990	FY 1991
14. Employees' Compensation (Payments to Department of Labor)	$13,042,000	$13,117,000	$14,930,000

Public Law 94-273, approved April 21, 1976, (5 U.S.C. 8147, paragraph b) provides that each agency shall include in its annual budget estimates a request for an appropriation equal to costs previously paid from the Employees' Compensation Fund on account of injury or death of employees or persons under jurisdiction of said agency.

The amount of $14,930,000 represents the total costs of benefits and other payments made from the Employees' Compensation Fund during the period July 1, 1988 through June 30, 1989 on account of injury or death of persons under the jurisdiction of the Corps of Engineers Civil Functions.

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Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1991

SUMMARY OF REMAINING ITEMS
OPERATION AND MAINTENANCE, GENERAL

	FY 1990 Allocation * ($)	FY 1991 Request ($)	Increase (Decrease) ($)
1. Navigation Projects			
a. Channels and Harbors			
(I) Monitoring of Completed Coastal Projects	1,750,000	1,850,000	100,000
(II) Dredging Research Program (DRP)	5,833,000	7,200,000	1,367,000
(III) Wetlands Research Program (WRP)	—	3,000,000	3,000,000
b. Locks And Dams			
Repair, Evaluation, Maintenance, and Rehabilitation Research (REMR II)	—	4,000,000	4,000,000
4. Protection of Navigation			
a. Removal of Sunken Vessels and Obstructions	972,000	1,000,000	28,000
b. Protecting, Clearing and Straightening Channels (Section 3)	48,000	50,000	2,000
c. Surveillance of Northern Boundary Waters	2,430,000	2,835,000	405,000
d. Waterborne Commerce Statistics	3,169,000	3,695,000	526,000
5. National Emergency Preparedness Program (NEPP)	7,778,000	8,000,000	222,000
6. Recreation Partnership Initiative (RPI)	972,000	800,000	(172,000)
7. Policy and Procedure Options For Project O&M	—	1,000,000	1,000,000
Total	22,952,000	33,430,000	10,478,000

* Estimated Allocation reflects prorated S&S and 1.4 percent GRH Sequestration.

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APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. NAVIGATION

a. Channels and Harbors
(I) Monitoring of Completed Coastal Projects

SCOPE: A selective and intensive monitoring of Civil Works coastal projects is executed to acquire information to improve project purpose attainment, design guidance, construction methods, and operation and maintenance techniques. Projects that provide maximum quantity and quality of applicable data addressing predominant coastal engineering problem areas are identified and those that best address high-priority problems are selected for monitoring and evaluation. Monitoring plans are developed by Corps of Engineers Districts and consist of either a comprehensive detailed survey to verify post-construction conditions on a one time basis or a continuous (or repetitive) collection of prototype data. Generally, monitoring efforts will not exceed five years in length. The intensive data base is analyzed and the prototype results compared to the pre-construction predictions to verify or upgrade existing design guidance, minimize operation and maintenance cost, and assure project-formulated benefits. The analyses include structural, topographic, and hydrodynamic responses and intercomparisons of projects when applicable.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 1991-1995) Program Cost	$9,850,000
Allocation Requested for 1991	1,850,000
Balance to Complete Five-Year Program after FY 1991	8,000,000
Allocation for FY 1990	1,750,000
Increase of FY 1991 over FY 1990	100,000
Average Annual Allocation for FY 1986-90	$1,270,000

JUSTIFICATION: A national program is needed to monitor, evaluate, and document the performance of projects that are designed to solve or mitigate major coastal problems. Coastal engineering projects often involve large financial investments. Overly conservative design of structures may require liberal funding. Conversely, a deficient design often leads to excessive operation and maintenance costs. This program monitors project performance, evaluates the performance against preconstruction projections, and transfers the sometimes costly lessons learned into guidance for the field and management staff. Coastal topography is often changed in response to constructed features of coastal projects. Currents, waves, flushing characteristics, tidal stages, and other hydrodynamic phenomena are also changed by the construction of coastal projects. Information gained from monitoring coastal engineering parameters, including the magnitude and rate of these changes, is required to verify design expectations, ascertain benefits, and evaluate operational and maintenance efficiencies. Information collected from monitored coastal projects will be analyzed locally with regard to topographic and hydrographic responses and project performance in relation to the need of each project. Additionally, this information will be collected and analyzed on a national basis to satisfy the need to document successful designs and to disseminate upgraded field guidance.

ACCOMPLISHMENTS: Technical reports have been published for projects at Carolina Beach, NC and Puget Sound, WA. The Cattaraugus Creek, NY; Cleveland Harbor, OH; and Umpqua River, OR, reports are in publication. Reports on projects at Burns Harbor, IN; Manasquan Inlet, NJ; Oakland Beach, RI; East Rockaway, NY; Ocean City Inlet, MD; East Pass Inlet, FL; Fisherman's Wharf, CA; Siuslaw River Jetties, OR; and Spud Point Breakwater, CA, are in preparation. Monitoring efforts were continued for projects at Redondo Beach, CA; Crescent City, CA; Folly River, SC; Agat Harbor, Guam; Barber's Point, HI; and Colorado River Mouth, TX. Significant results meriting emphasis include evaluation of the side-scan sonar imagery as a cost efficient underwater inspection technique; development of photogrametric monitoring techniques for relatively cheap, fast, and accurate structure surveys; verification of a recently developed shallow water wave model; and verification of the Shore Protection Manual overfill ratio used for beachfills. Monitoring results have also assisted in developing more efficient maintenance programs at Burns Harbor, Cleveland Harbor, Cattaraugus Creek, East Rockaway, Carolina Beach, and Puget Sound. Jarrett's tidal prism-inlet area equation has agreed closely with measured data, and results of at least one model study have been substantiated by field data.

FISCAL YEAR 1991:

ITEM	FY 1990	FY 1991
Recommended Monitoring Plan Reports	$30,000	$30,000
Monitoring and Data Reports	1,420,000	1,520,000
Program Management and Data Storage	300,000	300,000
	$1,750,000	$1,850,000

COORDINATION: Coordination between the Corps of Engineers and other Federal, State, and local agencies is essential for proper accomplishment of this program. In addition to satisfying Corps of Engineers requirements, the data will be made available through publications and will be of value to local, State, and other Federal agencies tasked with the development and implementation of rational coastal and offshore management policies.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1991

1. NAVIGATION

   a. Channels and Harbors

      (II) Dredging Research Program

SUMMARIZED FINANCIAL DATA

Estimated Seven-Year (FY 1988-1994) Program Cost	$35,000,000
Allocation for FY 1990	5,833,000
Allocation Requested for FY 1991	7,200,000
Balance to Complete after FY 1991	11,800,000
Increase of FY 1991 over FY 1990	1,367,000

JUSTIFICATION: The largest function in the Corps O&M budget is dredging. Historically, the Corps dredging mission was accomplished largely by Corps plant. Over the past several years, this situation has reversed, and most dredging is now carried out by contract using whatever methods and equipment the marketplace provides. This significant and rapid change has altered radically the Corps role in dredging. In the space of a few years, the Corps has gone from being the nation's largest dredging contractor to being the nation's largest dredging customer. As such, the Corps needs relative to dredging are now quite different. To administer an efficient, cost-effective dredging program, the Corps must now be able to: (a) ensure that the contractor is providing services and equipment that are well suited to the job requirements, and (b) manage the entire dredging process - planning, predicting, investigating, contracting, and inspecting - at the District level and higher in a comprehensive manner using the best and most cost effective methods and technology available.

The Dredging Research Program has one central purpose: reduce the cost of dredging operations to a minimum consistent with mission performance. This can be done in a variety of ways, including:

a. Increasing the efficiency of a process, operation, or piece of equipment.

b. Reducing the impact and number of contract claims.

c. Comprehensively defining operational requirements.

d. Sharing Corps field operating agency successes in cost reduction and modifying or expanding them for Corps-wide application.

DREDGING RESEARCH PROGRAM (CONT)

MAJOR FEATURES OF THE FY 1991 PROGRAM: The Dredging Research Program will begin its fourth year in FY 91 and is aimed at meeting the program purpose by developing, adapting, and demonstrating equipment and operational tools that can provide rapid and broadly applicable benefits to the Corps. Examples of program activities are:

1. Complete evaluation of commercially available estimating procedures for contract dredging.

2. Continue development of a "silent inspector" to supplement Federal employee inspection of contact dredging.

3. Continue work on systems to more accurately position dredging and surveying equipment in the horizontal and vertical plane offshore.

4. Continue development of standard descriptors for in-situ dredged material.

5. Continue work on measuring and verifying navigation limits in low-density sediment/water mixtures.

6. Continue studies on comprehensive management techniques for dredging operations.

7. Continue development of methods for predicting the fate and stability of dredged material disposal in open water.

ACCOMPLISHMENTS:

1. Developed acoustic devices for rapid surveys of consolidated sediments.

2. Developed instruments for monitoring disposal operations.

3. Completion of designs for auxiliary devices to increase effectiveness of sand bypassing eductor systems.

ACCOMPLISHMENTS (CONT):

4. Updated manual of instructions for hopper dredges.

5. Completed evaluation of equipment for placement of sediments near shore.

6. Completed plans and specs hardware components for dredging automated inspection system.

7. Developed empirical methods for predicting sediment movement at disposal sites.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1991

1. NAVIGATION

   a. Channels and Harbors

      (III) Wetlands Research Program

SUMMARIZED FINANCIAL DATA

Estimated Three-Year (FY 1991-1993) Program Cost	$22,000,000
Allocation Requested for FY 1991	3,000,000
Balance to Complete after FY 1991	19,000,000

JUSTIFICATION: The Corps of Engineers in performing its missions and responsibilities, directly affects wetlands and must consider the effects of its projects and decisions on wetlands. In its traditional role the COE has responsibility for flood control, hydropower production, navigation, water supply storage, and recreation. Section 404 of the Clean Water Act, Executive Order 11990, and the President's stand on "No Net Loss" of wetlands recognize a need to minimize the destruction, loss, or degradation of wetland functions and to preserve and enhance the value of wetlands. They have as their objective to maintain and restore the physical, chemical, and biological integrity of the Nation's water quality. Relative to project planning, construction, operations and maintenance (primarily dredging) and other accompanying activities in wetlands (Sec. 404) the Corps needs are diverse. These needs include improved and cost effective methods, techniques and knowledge bases to (a) delineate wetlands and determine their functions and value, (b) minimize wetland impacts, (c) create and restore wetlands, (d) determine cumulative impacts of wetland losses, and (e) incorporate this knowledge into a sound logical approach to problem solving and mission activities.

The magnitude of the problem is that nearly all activities of the Corps of Engineers are affected by wetlands-related issues. As such, the central purpose of the Wetlands Research Program is to combine the environmental and engineering disciplines to provide the best technical, most cost effective tools and methods to meet Corps and national needs. The information and techniques that will be developed in this program will be widely shared through coordination and cooperative efforts with other Federal and State agencies and a vigorous program of information dissemination and transfer.

MAJOR FEATURES OF THE FY 1991 PROGRAM: The Wetlands Research Program is aimed at meeting the program purpose by developing new knowledge of the nature, processes, and functions of wetlands (both natural and man-made) and by developing, adapting, and demonstrating methods, techniques and operational tools that can provide rapid and broadly applicable benefits to the Corps and the nation. Examples of initial program activities are:

1. Begin development of regional description of wetlands by wetland types.

2. Initiate work on studying and monitoring created and natural wetlands to compare physical, chemical, and biological functional attributes to expand and quantify the wetlands knowledge base.

3. Begin study of methods to minimize wetland impacts.

4. Initiate development of wetland change assessment techniques.

5. Begin development of improved engineering criteria for wetlands restoration and creation.

6. Initiate work on improved methods for wetlands stewardship and management.

7. Initiate comprehensive studies on the role of wetlands on a regional basis.

ACCOMPLISHMENTS: This research effort begins in FY 1991.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1991

1. NAVIGATION

b. Locks and Dams

(1) Repair, Evaluation, Maintenance, and Rehabilitation (REMR II) Research Program

SUMMARIZED FINANCIAL DATA

Estimated Seven-Year (FY 1991-1997) Program Cost	$35,000,000
Allocation for FY 1990	0
Allocation Requested for FY 1991	4,000,000
Balance to Complete after FY 1991	31,000,000
Increase of FY 1991 over FY 1990	4,000,000

JUSTIFICATION: The REMR Research Program as originally planned was successfully completed in FY 89 on schedule and within budget. It has clearly demonstrated the benefits of research in getting more value for the dollars spent on Repair, Evaluation, Maintenance, and Rehabilitation (REMR) activities. During the final year of the research program, savings in excess of 40 million dollars were attributed to the use of REMR developed technology. These savings were from first time uses of only a portion of the technology produced and did not include other benefits such as improved safety and reliability, reduced operational manpower requirements, and improved operational capabilities. Additional savings and benefits accrue each time the technology is used and with estimated savings over the next 5 years exceeding 200 million dollars. Because of the successes of REMR, the high demand for its products both within and outside the Corps, and the opportunity for similar successes on other REMR type problems, we are initiating a REMR-II Research Program. We expect the program to continue for 7 years with an added cost of 35 million dollars. During this time frame, REMR-II will address new and different needs which have been identified by Corps field offices. It will concentrate on problems and areas which have the potential for large payoffs and widespread application. Much of the technology that will be produced will have applications outside the Corps of Engineers to other types of infrastructure. A significant effort will be devoted to the coordination and sharing of this technology with other federal agencies, state and local governments, and the private sector.

The Corps of Engineers now operates and maintains more than 600 hydraulic structures (lock chambers, flood control dams, and powerhouses) at its Civil works projects. By the turn of the century, 54 percent of these structures will be over 40 years of age. During this same period, annual waterborne traffic is expected to increase some 50 percent and certainly the demand for water provided by our water supply reservoirs will increase. In addition, the Corps of Engineers operates and maintains thousands of miles of roads, breakwaters, jetties, groins, dikes, revetments, levees, and floodwalls in its many Civil Works projects.

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The continued safe and efficient operation and maintenance of these projects is essential to the economic well-being of the country. The cost associated with the evaluation, maintenance, repair, and rehabilitation of Corps of Engineers projects has become a major part of the Corps budget. The REMR-II Research Program will help to ensure that the Corps gets the maximum value for the dollars expended.

MAJOR FEATURES OF THE FY 1991 PROGRAM: This will be the first year of the REMR-II Research Program and as such is funded at a relatively low level. This year will be used to plan contract efforts and initial new studies under six broad problem areas.

1. CONCRETE AND STEEL STRUCTURES. Studies will be initiated on new concepts in maintenance and repair of concrete structures, precast concrete for repair and rehabilitation of structures other than lock walls, evaluation of new repair materials, and nondestructive evaluation systems for diverse applications.

2. GEOTECHNICAL. Under the Geotechnical Problem Area, studies will be initiated on levee rehabilitation and the effects of vegetation on levee reliability, new cost-effective reservoir shoreline erosion control procedures, new developments in seismic stability analysis, acoustic emissions monitoring for geotechnical applications, and methods to reduce rock erosion in spillway channels.

3. HYDRAULICS. A study will be initiated to develop design guidance for grouting riprap to improve its stability. Numerical hydrodynamic models for evaluating maintenance and rehabilitation alternatives for riverine hydraulic structures will be improved and disseminated for field use.

4. COASTAL. Tests will be initiated to develop guidance for sizing toe stone for rehabilitation of rubble-mound structures in a combined wave and flow environment. Underwater inspection of coastal structures still requires highly trained personnel to interpret the data collected. Development of software for display and analysis of data for routine use by field personnel will be undertaken.

5. ELECTRICAL AND MECHANICAL. Four studies will be initiated under the Electrical and Mechanical Problem Area. These studies are to: evaluate paint system for damp surfaces, develop a coating failure diagnostic guide, evaluate new cavitation repair materials for pumps and turbines, and develop performance and material property criteria for the selection of epoxy repair compounds.

6. OPERATIONS MANAGEMENT. An operations management system and condition index rating systems for concrete lock walls, steel sheel piles, miter gates, and timber dikes were developed under the original scope of the REMR program. Under the REMR-II program, condition index systems for other types of structures such as concrete dams and soils and rock structure will be developed. Also, the development of maintenance and repair costs and relationships for various alternatives and strategies will be pursued to take full advantage of the capabilities of the operations management system which has been developed.

COORDINATION. Coordination of this program will be pursued on three fronts. First, expertise relevant to REMR problems will be obtained from the technical staffs of various field operating agencies, and a synthesis of existing knowledge will be made available to field operating agencies. Second, the program will be coordinated with other Federal agencies (U.S. Bureau of Reclamation, Tennessee Valley Authority, and Federal Energy Regulatory Commission) through the biennial Interagency Research Coordination Conferences, annually through REMR-II meetings, and more frequently through meetings between experts in the particular problem areas. Third, a REMR Information Exchange Bulletin will be published on an irregular basis and distributed to over 3,000 individuals, technical organizations and societies, and local, state, regional, and Federal agencies.

ACCOMPLISHMENTS: A few of the major accomplishments during the final year of the original REMR Research Program are as follows:

1. CONCRETE AND STEEL STRUCTURES. Guidance was developed on improved nondestructive testing techniques for concrete structures, materials and techniques for joint repair and rehabilitation, in situ treatment of deteriorated concrete, and the selection and application of surface treatments for protecting and repairing concrete surfaces. New and improved materials and techniques for navigation lock rehabilitation were summarized to allow optimum use of available resources. A materials data base was made operational to aid in the selection of maintenance and repair materials.

2. GEOTECHNICAL. Guidance was developed for minimizing or controlling seepage in soil embankments economically, for repair of internally damaged sections of embankments, and for rehabilitation of rock drains. Improved geophysical techniques for assessment of existing earth structures and foundations and a methodology for determining the in-place stability of concrete structures on rock foundations were developed. Analysis methods to predict and provide useful criteria for tolerable movements of existing soil structures were developed, and guidelines were developed for the prevention and control of progressive failures in clay shales.

3. HYDRAULICS. Improved numerical models were developed for use in evaluating different geometries which will improve operational characteristics of hydraulic structures. Guidance was developed for repair of scoured areas downstream from navigation dams, and for determining when rehabilitation and repair of a navigation training structure is more cost effective than replacement.

4. COASTAL. A system was developed for providing a high resolution, near-structure bathymetry of coastal structures located in high-wave environments. Guidance was provided on techniques for reducing wave runup and overtopping, and materials and repair procedures for localized damage of coastal structures. Improved techniques for rehabilitating permeable breakwater and jetties were developed.

5. ELECTRICAL AND MECHANICAL. CW Guide Specification CW-09940 was updated to cover high solids coatings. A methodology for choosing a corrosion mitigation technique on a life cycle cost basis was developed. Guidance was furnished on the cost effectiveness of using synthetic lubricants.

6. ENVIRONMENTAL IMPACTS. Guidance was developed for levee maintenance standards with respect to tolerance of vegetation. The materials and techniques considered under the other research areas were evaluated from an environmental standpoint. Procedures were developed to evaluate the environmental impacts associated with REMR activities.

7. OPERATIONS MANAGEMENT. A management system was made available to assist OCE and Corps field offices in managing REMR activities. Guidance on the use of the system was provided. Condition index rating systems for concrete lock walls, steel sheet piles, timber dikes, and meter gates were developed.

8. Four additional REMR Information Exchange Bulletins were published; additional technical notes on materials, equipment, methods and techniques were issued for inclusion in the REMR Notebooks; and several workshops and training courses were conducted. Research technology was incorporated into appropriate civil works Engineering Manuals.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

4. PROTECTION OF NAVIGATION

The budget estimate of $7,580,000 provides for carrying out the following work:

a. Removal of Sunken Vessels

Removal of sunken vessels, or other similar obstructions, is governed by Sections 15, 19, and 20 of the River and Harbor Act of 1899, as amended. Primary responsibility for removal belongs to the owner, operator, or lessee. If the obstruction is a hazard to navigation and removal is not undertaken promptly and diligently, the Corps may obtain a court judgement requiring removal, or remove the wreck and seek reimbursement for the full cost of removal and disposal. Determinations of hazards to navigation and Federal marking and removal actions are coordinated with the Coast Guard in accordance with a memorandum of understanding between the two agencies dated 16 October 1985. Removal procedures are outlined in 33 CFR 245. The amount requested is an estimate based on a historical experience. If removal requirements are more than estimated, funds will be reprogrammed to meet actual needs.

b. Protection, Clearing, and Straightening of Channels

Section 3 of the 1945 River and Harbor Act (as amended by Section 915(g) of the 1986 Water Resources Development Act) provides continuing authority for limited emergency clearing of navigation channels not specifically authorized by Congress. A limit per project is not specified; however, in any given year, a maximum of $1,000,000 may be used nationwide. Work pursuant to this authority is undertaken as an emergency measure to clear or remove unreasonable obstructions to navigation in navigable portions of rivers, harbors and other waterways of the U.S., or tributaries thereof, in order to provide existing traffic with immediate and significant benefit. The amount requested is an estimate based on historical experience. If actual requirements are more than estimated, funds will be reprogrammed to meet demonstrated needs.

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c. Surveillance of Northern Boundary Waters

The budget estimate provides for accomplishing activities required under provisions of treaties and international agreements for boundary waters of the United States and Canada. This funding consists of two elements: International Waters Studies (IWS) and Survey of North Central lakes (SNCL). The IWS funding will be used to support U.S. representation on numerous international boards and committees. The majority of these boards were established by the International Joint Commission (IJC) in order to carry out the provisions of the Boundary Waters Treaty of 1909. The SNCL funding will be used to perform missions in relation to water resources management of the Great Lakes. The activities include: collection, analysis, coordination and dissemination of hydraulic and hydrologic data; development and maintenance of mathematical models; development, update and maintenance of a geographic information system (GIS) of the Great Lakes shoreline and drainage basins; and, operating and maintaining a Great Lakes Water Control Data System. These activities also support the IJC and its various boards.

d. Waterborne Commerce Statistics

The Corps of Engineers serves as the nation's sole source collection and distribution agent for domestic waterborne commerce statistics in conformance with the River and Harbor Act of 1922 and the Water Resources Development Act of 1986 (PL 99-662). Activities supporting this mission include: 1) collecting and reporting statistical data; 2) processing, compiling, and annually publishing statistical data and information on waterborne commerce and vessels moving on the inland waterways, the Great Lakes, and through all U.S. ocean ports; 3) compiling and publishing an annual report listing and describing all United States vessels engaged in commerce, along with the principle trades in which they are engaged and their zones of operation. In addition to funds required for Corps of Engineers collection, this request includes funds to reimburse the Bureau of the Census for costs incurred in furnishing the Corps of Engineers foreign waterborne commerce statistics. This arrangement, instituted in 1947, eliminates duplication of effort in collecting and compiling foreign commerce.

Implementation of Section 1402 of the 1986 Water Resources Development Act (The Harbor Maintenance Tax) requires that the Corps of Engineers collect shipper information from vessel operating companies and furnish the information to the U.S. Customs Service who is responsible for collecting payments directly from shippers using harbors subject to the Harbor Maintenance Tax.

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OBLIGATIONS

		Actual FY 1989	Estimated FY 1990	Estimated FY 1991
(a)	Removal of Sunken Vessels and Obstructions	$ 831,000	$972,000	$1,000,000
(b)	Protecting, Clearing and Straightening Channel	0	48,000	50,000
(c)	Surveillance of Northern Boundary Waters	2,225,000[1]	2,430,000[2]	2,835,000[3]
(d)	Waterborne Commerce Statistics	3,319,000	3,169,000	3,695,000
	TOTAL	$6,375,000	$6,619,000	$7,580,000

1/ International Water Studies ($401,000) and Survey of North Central Lakes ($1,824,000)

2/ International Water Studies ($661,000) and Survey of North Central Lakes ($1,769,000)

3/ International Water Studies ($725,000) and Survey of North Central Lakes ($2,110,000)

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Appropriation Title: Operation and Maintenance, General, FY 91

5. **National Emergency Preparedness Program**

Authorization: Executive Orders 10480 and 12656 (cites several acts)

Summarized Financial Data:

Appropriation for FY 90	$7,778,000
Allocation Requested for FY 91	$8,000,000

Justification: Essential emergency functions assigned by Executive Orders (E.O.) 10480 and 12656 include development of national plans and preparedness programs to meet civilian and defense needs during national security and major domestic emergencies. The Corps of Engineers' responsibility to provide engineering and construction support in response to these national emergencies requires extensive pre-emergency planning and preparedness activities. These activities ensure an engineering and construction capability that can be rapidly shifted from normal peacetime missions to meet national security emergency or mobilization needs. A fully prepared Corps of Engineers enhances the Nation's ability to respond in a crisis. E.O. 12656 assigns the Corps of Engineers responsibility for national leadership in developing policy, guidance and procedures for meeting essential military and civilian water and water support resource needs during national emergencies. This responsibility includes coordination of emergency water planning by Federal agencies as well as regional, state, and local planning efforts through appropriate Federal agencies. Draft E.O. 10480 expands the above mission to include the responsibility for allocation of emergency water resources during an emergency with national security implications.

Accomplishments: National Emergency Preparedness Program funds provide support in two major planning areas; support of the Army and support of other Federal agencies. Activities include: analyses and studies which define Corps of Engineers national emergency support requirements; development, review, and revision of necessary plans and guidance documents; training of emergency response personnel; exercises to test emergency organizations, policies, plans, procedures, and training; development, operation and maintenance of emergency command and control facilities; and national program management. The major document containing policy and guidance for the Corps of Engineers National Security Emergency Preparedness Program is continually being reviewed and updated to ensure currency. It includes separate volumes covering Emergency Resource Assessment, the Corps of Engineers Mobilization and Operations Planning System, Civil Emergency Support, Natural Disasters Support, and Technological Hazards Support. Additionally, documentation supporting the

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President's National Emergency Coordination System and National Security Emergency Preparedness Program is being produced and implemented. Notable was the support provided to the Nation during the recent earthquake in California. As a result of the high degree of preparation by the Corps of Engineers, mobilization for the disaster and subsequent recovery effort was smooth and timely.

__Fiscal Year 1991:__ The FY 91 program provides continued implementation of the Administration's National System of Emergency Coordination and National Security Emergency Preparedness program which are directed by Executive Orders 10480 and 12656 as amended. It will allow for updating, expansion, revision and maintenance of national security emergency management activities. Due to funding limitations, some preparedness functions including some critical earthquake planning will be severely curtailed. The establishment of an Earthquake Center of Expertise, earthquake planning and continued earthquake hazard planning remain seriously under-resourced. New plans are being developed to improve the Corps of Engineers ability to support the Nation. Exercises will test and evaluate new and existing plans, their parent policies, as well as the procedures for determining if the Corps is providing the best possible customer support.

The $8,000,000 requested for FY 91 will be used by in-house forces to perform the following activities:

Mobilization Preparedness	$4,000,000
Continuity of Government	$4,000,000
TOTAL	$8,000,000

Appropriation Title: Operation and Maintenance, General, FY 91

6. Recreation Partnerships Initiative

Summarized Financial Data

Estimated three-year program cost	$2,000,000
Allocation for FY 1990	$972,000
Allocation Requested for FY 91	$800,000
Balance to Complete	$228,000

Justification: About 80% of the Corps projects are within 50 miles of major metropolitan areas, and 94% are within a two hours drive. The elements of the Recreation Partnerships Initiative are directed toward identifying policies and regulations that are barriers to private investment on public lands, identifying additional opportunities for states, local communities and private sector associations, enterprises, and volunteers to supply recreation opportunities on Federal lands, and organizing Corps recreation information so that it can be used by privately operated networks.

Background: In 1985, the President established the 15-member President's Commission on American's Outdoors (PCAO) to review outdoor recreation resources, programs and opportunities, and to make recommendations that would ensure the continued availability of quality outdoor recreation. The commission submitted its report and recommendations to the President in early 1987. In late 1987, a task force under the Domestic Policy Council put together an Administration outdoor recreation policy and implementation strategy, in response to the PCAO report and recommendations. The President endorsed the task force action plan, Outdoor Recreation in a Nation of Communities, which focused on initiatives designed to strengthen America's communities.

Accomplishments: Phase I resulted in the identification of prime locations for the provision of additional recreation opportunities through private sector investment.

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Major Features of the Fiscal Year 1991 Program: The FY 91 Recreation Partnerships Initiative provides for detailed evaluation of priority sites identified in Phase I. The following activities represent Phase II of the Recreation Partnerships Initiative:

(a) Identifying specific opportunities for recreation development by private sector investors on Corps administered lands.

(b) Facilitating the development of identified opportunities for private sector investment on public recreation.

(c) Encouraging cooperative partnerships to expand recreation opportunities.

Appropriation title: Operation and Maintenance, General

7. POLICY AND PROCEDURE OPTIONS FOR PROJECT O&M

Summarized Financial Data:

Total Study Cost Estimate	$1,500,000
Allocation for Fiscal Year 1990 (Within Available Funds)	300,000
Appropriation Requested for Fiscal Year 1991	1,000,000
Remaining Requirement After Fiscal Year 1991	200,000

Justification:

Background. The Corps of Engineers has constructed about 230 locks and dams, 500 local flood protection projects, 370 reservoirs, 75 hydroelectric power plants, 800 commercial harbors, and 2900 recreation areas. The vast majority of these facilities -- with the exception of the local flood protection projects -- are operated and maintained by the Corps itself. The Corps budget for Operation and Maintenance has increased steadily for years, and has become by far the largest of all program areas. In Fiscal Year 1990, the O&M program accounts for 45 percent of the total Corps Civil Works program, and it supports about half of the overall Civil Works workforce of the Corps. This major program has come face to face with the exingencies of deficit reduction and budgetary limitations. Therefore, a comprehensive review of the program is urgently needed.

Objectives. The ultimate objective is to assure that Federal expenditures for O&M of Corps projects are justified and are made in the most cost effective manner. The immediate output of the study is expected to be practicable measures -- the policies and procedures -- that could be applied toward that end. It will not yield project specific proposals for O&M spending, but, rather identify the necessary actions for achieving this result. The study will not duplicate ongoing studies and efforts relating to Corps organization, productivity improvement, recreation, and financial management system, but will use any data or results that become available from these studies and efforts. As a basic principle, the study will presume that justifiable levels of service will be maintained at all projects.

Fiscal Year 1990 Development of a plan of study, assembly of information and data, preparation of request for proposals and contractor selection.

Fiscal Year 1991 Development of options under the following five broad categories of work or themes:

(1) Productivity of the Existing Program
(2) Intensive Management.
(3) Divestiture
(4) Modernization
(5) Program development, execution and monitoring procedures

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Appropriation title: Regulatory Program, Fiscal Year 1991

Authorization: Rivers and Harbors Act of 1899, Sections 9, 10 and 13
Federal Water Pollution Control Act of 1972, as amended, Section 404
Marine Protection, Research and Sanctuaries Act of 1972, Section 103

Summarized Financial Data:

Allocation for Fiscal Year 1989	$63,752,000 *
Allocation for Fiscal Year 1990	68,455,000 **
Appropriation Requested for Fiscal Year 1991	75,100,000 ***

* Includes $1,100,000 and $2,225,000 4th Quarter Supplementals

** Includes $3,944,000 initially allocated for Bridge Program, but planned to be reprogrammed to other regulatory activities, since authorization for transfer of Bridge Program from USCG not enacted.

*** Excludes $4,000,000 for Bridge Program, for which supplemental appropriation is requested, contingent upon authority to transfer program from USCG.

Justification:

Background. The Corps of Engineers has been regulating certain activities in the nation's waters since 1890. Most authority for administering the program has been given to the 36 district engineers and eleven division engineers. The general permit program is the primary method of reducing the intensity of Federal regulation of minor activities. The use of general permits, joint processing procedures with states, interagency review coordination, and transfers of authority to states is practiced to reduce duplication. If legislation is passed, regulation of bridge construction may be transferred to the Corps of Engineers from the U. S. Coast Guard. A presidentially directed goal of "no overall net loss of wetlands" resulted in a new emphasis on wetlands protection in 1989.

Types of Activities Regulated.

(1) Dams and dikes in navigable waters of the United States;

(2) Other structures or work including excavation, dredging, and/or disposal activities, in navigable waters of the United States;

(3) Activities that alter or modify the course, condition, location, or physical capacity of a navigable water of the United States;

(4) Construction of fixed structures and artificial islands on the outer continental shelf;

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(5) Discharges of dredged or fill material into the waters of the United States (including wetlands);

(6) The transportation of dredged material for the purpose of dumping it in ocean waters.

(7) Construction of bridges and causeways over navigable waters (Currently regulated by U. S. Coast Guard; transfer to Corps of Engineers in FY 90 or FY 91 is contingent upon legislative action).

Public Interest Review. The decision whether to issue a permit is based on an evaluation of the probable impact of the proposed activity on the public interest. That decision reflects the national concern for both protection and utilization of important resources.

Accomplishments: The Corps received 15,300 applications in FY 1988. In addition, over 20,000 activities a year are authorized through regional permits and tens of thousands more through nationwide permits. In late FY 1989 with supplemental funding, the Corps began actively moving to ensure greater protection of the nation's wetlands.

Fiscal year 1991: The request of $75.1 million is a $6.6 million increase over FY 1990 Appropriations and excludes $4 million for the administration of bridge construction, a new responsibility to be transferred from the U. S. Coast if authorizing legislation is enacted in FY 1990. The remaining amount will allow the continuation of enforcement and wetlands-related work initiated in FY 89 with a 2.225 4th Qtr supplemental. (That work will be continued in FY 1990 including the planned reprogramming of $3.944 million originally designated for bridge administration). With the additional funding in FY 1991 the Corps can continue its increased level of enforcement, depending heavily on contracting, and continue to minimize permit delays for the regulated public. In addition training and technical support for wetlands protection can continue. The $79.1 million requested for FY 91 will be applied as follows:

Permit Evaluation	$53,600
Enforcement	18,600
Studies	1,800
Other Navigation Regulations	500
Environmental Impact Statements	600
	$75,100

Under provisions of the Interoffice Appropriation Act of 1952 (31 USC 9700), revised fee schedules are proposed to provide offsetting revenues estimated at $17 million in Fiscal Year 1991 to recover part of the regulatory expenses, including but not limited to labor and associated costs for the review and evaluation of permit applications. Under the proposed system, a fee would be collected when an application is submitted, rather than when a permit is issued as in the current system. Fees would range from $100 to $500 for applications from private individuals and $100 to $2,000 for those from businesses and revenue producing public agencies. Most government agencies would not pay fees. In addition to an application fee, there would also be charges for jurisdiction determinations, environmental impact statements, and public hearings. Under the proposal, resultant revenues, estimated at $17 million in Fiscal Year 1991, would be placed in the U.S. Treasury as an offsetting receipt.

APPROPRIATION TITLE: Flood Control and Coastal Emergencies, FY 1991

Disaster Preparedness/Emergency Response

SUMMARIZED FINANCIAL DATA:

Appropriation Requested for FY 1991	$25,000,000
Appropriation for FY 1990	0

JUSTIFICATION: The Corps responsibility for emergency/disaster response requires that a fully functional engineering/construction/emergency operations response capability be maintained. This response can be under Corps authorities, such as PL 84-99, Flood Control and Coastal Emergencies, or in support of other agencies, particularly FEMA under PL 93-288 and EO 12148. Response activities under the Corps PL 84-99 authority include the following: emergency operations (flood response and post flood response); emergency repair and restoration of flood control works which are threatened, damaged, or destroyed by flood; emergency protection of existing Federal hurricane and shore protection works; the repair or restoration of Federal hurricane or shore protective structures damaged or destroyed by wind, wave or water action of other than ordinary nature; preventive work performed prior to flooding when conditions pose a flood threat to life or property; providing emergency supplies of clean water to any locality confronted with a source of contaminated water causing or likely to cause a substantial threat to public health and welfare; and provision of water supplies to drought-distressed areas by well drilling on a reimbursable basis or transportation of water at Federal cost. In support of FEMA's disaster response and recovery activities, Corps mission assignments have included: emergency debris removal; preliminary damage assessments; detailed damage survey reports; temporary housing; emergency snow removal contracting and construction management; and other support which calls upon the Corps engineering, contracting, and construction expertise. The funding for unscheduled response activities under PL 84-99 would meet the requirements of a minimum year and is equivalent to about 40 percent of the average annual requirements for these activities. This would preclude adverse impacts on other appropriations from a higher level of emergency responses that could be expected.

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ACCOMPLISHMENTS: Planning and preparedness activities for natural disaster response are funded under PL 84-99 authority in the category "Disaster Preparedness." The purpose of these activities is to ensure an engineering organization capable of responding to both natural and man-made disasters. Major efforts include: the review and updating of response plans to ensure viability; training personnel to ensure their capability to respond in adverse circumstances; procurement and prepositioning of critical equipment and supplies which would likely not be available during initial stages of a response; periodic exercises to test and evaluate plans, personnel and training; inspection of non-Federal flood control projects to ensure their viability to provide flood protection; and, the overall management of the response program to ensure a workable, coordinated effort is undertaken in a timely manner.

FISCAL YEAR 1991: The $25,000,000 requested for FY 1991 will be used by in-house forces to perform the following activities:

Preparedness Program	
Corps Statutory Authorities	$ 6,870,000
Activities in Support of Others	1,840,000
Facilities	1,520,000
Inspections	1,970,000
Emergency Response (Advance Measures, Emergency Operations, Rehabilitation)	12,800,000

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JUSTIFICATION OF ESTIMATES FOR CIVIL FUNCTIONS ACTIVITIES
Department of the Army, Fiscal Year 1991
Corps of Engineers

APPROPRIATION TITLE: General Expenses

	FY 1990 Appropriation	FY 1991 Budget request	Change
1. Executive Direction and Management			
a. Office, Chief of Engineers	$ 46,280,000	$ 49,680,000	$ 3,400,000
b. Division Offices	67,287,000	73,615,000	6,328,000
2. Other Activities			
a. Board of Engineers for Rivers and Harbors	478,000	534,000	56,000
b. Coastal Engineering Research Board	260,000	282,000	22,000
c. Engineer Automation Support Activity	6,677,000	5,336,000	-1,341,000
d. Water Resources Support Center	6,015,000	6,653,000	638,000
TOTAL:	$126,997,000	$136,100,000	$9,103,000

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APPROPRIATION TITLE: General Expenses

1. Executive Direction and Management

a. Office, Chief of Engineers (OCE)	FY 1990 Allocation	FY 1991 Request
	$46,280,000	$49,680,000

The Chief of Engineers is responsible for carrying out a comprehensive Civil Works Program in accordance with the directives of the Congress. Implementation of these directives is decentralized throughout the Corps of Engineers in 36 districts and 11 division offices and several separate activities, using senior experienced personnel and other highly skilled specialists. The Office, Chief of Engineers assists field offices by providing program management, policy guidance, preparation of the annual budget and legislative submission, coordination, intensive management of high interest or controversial projects or issues, and program analysis, audit and oversight.

The amount requested for the Office, Chief of Engineers for FY 1991 is $49,680,000, which is an increase of $3,400,000 above the FY 1990 allocation of $46,280,000. The net change will be:

$2,727,000 - personnel compensation and benefits cost increases.
224,000 - rent, communications and utilities cost increases.
124,000 - reproduction and printing cost increases.
106,000 - supplies and equipment cost increases.
81,000 - ADP and other remaining services cost increases.
138,000 - travel and transportation cost increases
$3,400,000

Breakdown of the total $49,680,000 requested for the Office, Chief of Engineers, includes $32,490,000 for personnel compensation and benefits for civilian and military personnel, and $17,190,000 for other costs. Other costs include:

$ 4,081,000 - rent, communications and utilities
2,503,000 - travel and transportation
2,266,000 - reproduction and printing
1,906,000 - supplies and equipment
6,434,000 - ADP and other remaining services
$17,190,000

APPROPRIATION TITLE: General Expenses

1. Executive Direction and Management (Continued)

b. Division Offices

	FY 1990 Allocation	FY 1991 Request
	$67,287,000	$73,615,000

Division offices provide the managerial technical direction required by the Chief of Engineers for proper supervision of subordinate district offices in carrying out the Civil Works Program. The Executive Direction and Management activities are decentralized to 11 division offices throughout the United States. Based on a continuing analysis of the workload and utilization of personnel in division offices, the requirement for the operation of 11 division offices supported from General Expenses funds in FY 1991 is $73,615,000. This amount is $6,328,000 above the FY 1990 allocation of $67,287,000. The net change will be:

$3,763,000	-	personnel compensation and benefits cost increases.
772,000	-	rent, communications and utilities cost increases.
393,000	-	travel and transportation cost increases.
44,000	-	reproduction and printing cost increases.
349,000	-	supplies and equipment cost increases.
1,007,000	-	ADP and other remaining services cost increases.
$6,328,000		

Breakdown of the total $73,615,000 requested for the 11 division offices includes $54,585,000 for personnel compensation and benefits for civilian and military personnel, and $19,030,000 for other costs. Other costs include:

$ 6,474,000	-	rent, communications, and utilities
3,367,000	-	travel and transportation
254,000	-	printing and reproduction
7,225,000	-	ADP and other remaining services
1,710,000	-	supplies and equipment
$19,030,000		

APPROPRIATION TITLE: General Expenses

	FY 1990 Allocation	FY 1991 Request
2. Other Activities	$13,430,000	$12,805,000

Other activities include: the Board of Engineers for Rivers and Harbors (BERH) which reviews and prepares recommendations on reports regarding authorized river and harbor projects, flood control projects, and beach erosion control projects, in addition to approving and recommending on plans for modification and reconstruction of any lock, canal, canalized river, or other work of benefit to navigation; the Coastal Engineering Research Board (CERB) which provides broad policy guidance, reviews plans and funds requirements for conducting coastal engineering research and development, recommends research project priorities, and performs other duties assigned by the Chief of Engineers; the Engineer Automation Support Activity (EASA) which provides a central service for ADP systems design, computer programming, collection and computation of statistical data and production of reports for the Office of the Chief of Engineers; and the Water Resources Support Center (WRSC) which provides a variety of water management functions such as conducting and managing national studies, review of project reports, special studies, and research, and technical and data management support to other Corps offices in matters dealing with water resource management.

The amount requested for other activities for FY 1991 is $12,805,000 which is $625,000 less than the FY 1990 allocation of $13,430,000. The net change will be:

$ 681,000	- personnel compensation and benefits cost increases
223,000	- rent, communication and utilities cost increases
43,000	- travel and transportation of goods cost increases
8,000	- reproduction and printing cost increases
33,000	- supplies and equipment cost increases
-1,611,000	- ADP and other remaining services cost increases less FY 90 one-time CEAP software conversion costs
$ -625,000	

Breakdown of the total $12,805,000 request for other activities include $6,998,000 for personnel compensation and benefits for civilian and military personnel and $5,807,000 for other costs. Other costs include:

$1,483,000	- rent, communications, and utilities
357,000	- travel and transportation of goods
107,000	- reproduction and printing
370,000	- supply and equipment
3,490,000	- ADP and other remaining services
$5,807,000	

29 JAN 1990

APPROPRIATION TITLE: REVOLVING FUND - PLANT REPLACEMENT AND IMPROVEMENT PROGRAM (PRIP)

1. Explanation of Revolving Fund. The Revolving Fund, which was established by Congress in 1953 (Public Law 153, 83rd congress - 67 Stat. 199), replaced the Plant Allotment Account authorized by the Secretary of War, on 13 December 1934, which had in turn replaced the Plant Program - Appropriation Basis which was in use prior to 1934. The two systems, prior to the establishment of the Revolving Fund, did not prove to be successful, because the accounting procedures necessitated by the systems were cumbersome and resulted in a distorted picture of costs when plant was transferred from one appropriation to another.

Essentially, PL 153 provided that the Revolving Fund assume the total capital value of $127.9 million in 1953, consisting of the unexpended cash balance ($25.3 million) and the net value ($102.6 million) of the assets and liabilities of the plant accounts; and to perform all future services, as a separate entity, within its own resources. The Plant Replacement and Improvement Program of the Revolving Fund, or PRIP, has proven to be an effective means of providing equipment and materials needed on more than one project. Some advantages of the system are: (1) Simplifies funding and accounting procedures; (2) Provides a means for plant rental which considers plant replacement costs; (3) Eliminates distorted project costs when plant is not used entirely on a single project throughout its economic life; and (4) Permits plant to be available on a timely basis to meet changing workload requirements.

The concept of the Revolving Fund is for it to operate within its own resources, rather than from annual appropriations. The Fund owns all the land, structures, dredges, other floating plant, aircraft, fixed and mobile land plant, tools, office, furniture, special equipment, and computers, that serve two or more Civil Works projects. In order for the Revolving Fund to acquire and replace the above items, it is necessary that the user project or appropriation be charged a fee for the actual time the equipment is used. This fee consists of operating and fixed costs. The operating costs are reimbursed to the Revolving Fund without any surcharge. The fixed or capitalized costs include depreciation, based on the straight-line method and a plant replacement increment factor to provide for future increased costs of replacement items due to inflation. Two additional sources of income to the Revolving Fund are the sale of surplus items and, when planned expenditures exceed the income producing capability of the Fund, direct appropriations.

When the Revolving Fund was established, Congress authorized a capital limitation or ceiling (Corpus) of $140.0 million for the Fund. The capital value or corpus is the total assets, less liabilities and reserves. The $140.0 million ceiling was adequate until 1965, when increased workload and inflation required that the Corps of Engineers request annual increases in the corpus ceiling. These requests were generally granted. The limitations on the corpus ceiling value limited the income that could be generated from plant rentals which, in turn, adversely affected the overall management of the Fund. Therefore, the Corps recommended that an annual capital expenditure ceiling be substituted for the corpus ceiling. Congress granted the request in FY 79. Starting with the FY 85, expenditures ceilings were replaced with expenditures estimates. For FY 91, capital expenditures are estimated at $100.0 million.

2. The Revolving Fund is operated in the Divisions, Districts, and separate Field Offices, the Waterways Experiment Station, and the Cold Regions Research and Engineering Laboratory. The fund incurs the expenses of acquisition, rehabilitation, operations, and maintenance of multiple use structures, such as warehouses, shops, garages, and laboratories; the expenses of acquisition, rehabilitation, operations, and maintenance of general-purpose plant, such as dredges, tugs, launches, trucks, cranes, bulldozers, and other construction equipment; and the general expenses of District offices.

3. FY 1990 and FY 1991 (Items costing $700,000 or more)

a. Land and Structures:

(1) Warehouse and Shops Building - New Orleans District (New): The current New Orleans warehouse and shops buildings are a conglomeration of structures. Some were constructed as early as 1927, and a number have either asbestos roofs or siding or both. Most have no insulation, and therefore cannot be efficiently cooled and heated. Furthermore, because of the arrangement of the buildings and storage areas, timber and pilings must be double or triple handled to load them onto barges. Existing facilities will be replaced by a 24,000 square foot new warehouse/office building, a 21,000 square foot shops/office building, and a new piling supported timber storage area which will be located to permit the Derrick Boat "BROWNLEE" to directly load timber and piling onto barges. Included in the redevelopment will be mooring clusters for the Dredge "WHEELER". Total estimated cost: $3,650,000. Through FY 1990: $280,000 for design. FY 1991: $1,000,000 to complete design and to initiate construction. FY 1992: $1,640,000 to continue construction. Future Fiscal Years: $730,000 to complete construction.

(2) Replacement for Mobile Area Office - Mobile District (New): A new facility is required to provide office space and storage for the Mobile Area Office because the existing space in the present Government Street facility is no longer adequate. There is insufficient storage space and office space is being utilized for equipment storage. A recent physical security inspection revealed that there should be a sizeable clear space along the perimeter of the fence; this would further reduce available storage space. In addition, the District Safety Office identified several problems related to the close proximity of items which should be kept separate, including hazardous and flammable materials and personnel. The new facility would be located on a nearby 10 acre site which has been acquired for a high frequency antenna array by the Emergency Management Division and the Emergency Coastal Radio System. The cost the new facility will be offset by proceeds from the sale of the present facility. Plans call for a 6,600 square foot administration building and a 7,500 square foot building housing a radio repair shop and providing secure storage and covered work areas. Total estimated cost: $1,260,000. Through FY 1990: $100,000 for design. FY 1991: $1,000,000 to initiate construction. FY 1992: $160,000 to complete construction.

(3) Bulkhead Rehabilitation, Caven Point - New York District (New): In July 1981 a cave-in took place undermining the concrete roadways located adjacent to the "HAYWARD" dock. Further examination by divers showed that huge void spaces existed under the concrete roadways and storage area running alongside the bulkhead toward the boat lift and the shop building. The divers also found the 35 year old sheet piling bulkhead to be badly deteriorated in many areas. The area of the boat lift is of particular concern because the sheet piling supports the weight of the boat hoist platform in addition to serving as a bulkhead to retain fill. The web thickness of the sheet piling at the boat hoist platform was 0.5 inches when new and now averages 0.21 inches at mean low water which represents a loss due to corrosion of 58 percent. The sheet piling deterioration is most severe within the splash zone which is approximately equal to the tidal zone. The severe corrosion has allowed fill material to wash out thereby undermining roadways and creating hazardous conditions. This request is to rehabilitate the bulkhead structure to restore the structural capacity of the walls and significantly extend the service life of the structure. The project will add 30 years of service life to the existing bulkhead and the associated facilities. Total estimated cost: $2,560,000. Through FY 1990: $60,000 for design. FY 1991: $2,500,000 for construction.

(4) Bulkhead Replacement, Fort Norfolk - Norfolk District (New): This project consists of replacing approximately 350 linear feet of failed bulkhead located at Fort Norfolk and dredging the existing slip on the eastern edge of the public property. The area behind the bulkhead is eroding and undermining the adjacent property. Erosion is

creating an habitat for rats and also filling the boat slip. Floating timber from the failed bulkhead creates hazards for small boat traffic in the harbor. These hazards will worsen if the bulkhead is not replaced. The advanced state of failure makes rehabilitation of the existing bulkhead impossible. In addition, the Fort Norfolk area is a registered historic land mark. Total estimated cost: $1,510,000. Through FY 1990: $80,000 for design. FY 1991: $1,420,000 to initiate construction. FY 1992: $10,000 to complete construction.

(5) Replacement Wharf, Concrete - New Orleans District (New): The existing wharf, constructed of creosote timbers and pilings, has not been completely rebuilt in over 20 years. All repairs have been localized and general in nature. In its current condition major repairs to the wharf, without total reconstruction, cannot be economically justified. A concrete wharf, which would be a permanent fixture requiring little or no maintenance, is proposed to replace the existing wharf because of high construction costs and high maintenance costs associated with wood products in the New Orleans area. Concrete piling would be used in lieu of creosote pilings. The wharf is required for loading and unloading barges, for a landing area for dry docking and repairing small vessels, and for loading and unloading hopper dredge parts and supplies. Total estimated cost: $1,650,000. Through FY 1990: $50,000 for design. FY 1991: $1,600,000 for construction.

(6) Upgrade US Moorings Facility - Portland District (New): The US Moorings have been in place since 1907 on land purchased in 1903. The facility, which provides operational and maintenance support for the Dredges "ESSAYONS" and "YAQUINA," consists of a machine shop, a welding shop, a garage, an electrical shop, warehouses, an office building, a dock with associated water and power facilities, plus several other miscellaneous facilities. The present out-of-date layout of the facility, with buildings ranging in age from 45 to 70 years old, is based on the 1940's vintage master plan. The purpose of this project is to design and construct a new, efficient, safe, and modern US Moorings facility. The project will include upgrading or rebuilding structures and facilities, underground water, gas, air, steam, drain, and power lines, the dock and crane, and providing adequate and safe parking, and an aesthetically pleasing facility. Construction is scheduled for FY 92 and FY 93. The project impacts include reduction of maintenance costs. Total estimated cost: $3,250,000. Through FY 1990: $50,000 to initiate design. FY 1991: $200,000 to complete design. FY 1992: $1,500,000 to start construction. FY 1993: $1,500,000 to complete construction.

(7) Civil Works Research Facility - Cold Regions Research Engineering Laboratory (New): A new facility to house an expanded Civil Works mission which includes the new Remote Sensing Assistance Center and the growing research and development demonstration

programs in Remote Sensing and Cold Regions Hydrology is required. Projected growth in staffing for these programs will require space that far exceeds that currently available at the Cold Regions Research Engineering Laboratory. Also, a secure area is required to accommodate the sensitive image processing analysis required by the Civil Works mobilization mission. Total estimated cost: $2,330,000. Through FY 1990: $130,000 for design. FY 1991: $2,100,000 to initiate construction. FY 1992: $100,000 to complete construction.

(8) Building Rehabilitation - Alaska District (New): Building 21-702 is a 3,000 square foot, one story, wood frame structure constructed in 1946 to house the District Materials Laboratory that now also houses the Safety Office. The building does not meet current fire, life safety, and energy code standards. The Materials Section has experienced a general steady changing of its mission and workload from materials testing associated with design and support to construction, to materials testing for design and for water quality and hazardous waste testing. This has resulted in a facility which is presently laid out for the wrong mission. This project will provide a more efficient facility for current mission requirements and bring the structure into compliance with building codes. Total estimated cost: $700,000. FY 1991: $700,000 for design and construction.

(9) Renovation - Division Laboratory - South Pacific Division (Continuing): The South Pacific Division operates a multi-purpose laboratory for soils, rock mechanics, geologic, concrete and materials, water quality and environmental testing. The laboratory conducts sophisticated and essential testing operations in a primitive wood frame shipyard facility constructed during World War II. In its current state the building violates numerous building and life safety codes. The dilapidated state of the structure compromises quality control of many environmental tests conducted at the laboratory. The renovation will eliminate safety violations in the areas of dust control, excessive noise, electrical system overloads, fire exits, and asbestos hazards. The replacement of the roof, siding, and windows and the installation of insulation will reduce energy usage in the laboratory as well as building maintenance costs. Because of the magnitude of renovation required the Division analyzed other options including relocation and new construction. Renovation of the current laboratory facility was found to be the least costly alternative for correcting the difficulties. Total estimated cost: $5,310,000. Through FY 1990: $469,000 for design. Future years: $4,841,000 to complete the design and construction.

(10) District Office Building Replacement - Walla Walla District (Continuing): A new headquarters building for the Walla Walla District is required to replace the existing 45 year old structure. GSA found the current structure in substantial violation of safety and structural standards during inspections in February and March 1985. The cost to correct these deficiencies was estimated at that time to be between $4,500,000 and $5,000,000. Such costly repairs are uneconomical for a structure with a useful life of only 15 years remaining. In addition, the facility is very inefficient to operate and maintain. Utility costs for the present facility are more than triple those of a modern structure of comparable size. Current estimates are based on construction of a 93,800 square foot building for 332 employees. Total estimated cost including design, land acquisition, construction, and furniture is $14,060,000. Through FY 1990: $1,690,000 for land acquisition and design. FY 1991: $8,610,000 to complete design and initiate construction. FY 1992: $3,760,000 to complete construction of the project.

(11) District Office Building - Galveston District (Continuing): Since April 1974, the Galveston District headquarters has occupied leased facilities intended to serve a temporary need pending construction of permanent office space. The current lease is the result of exercising the first of two five year renewal options, each containing a 90 day cancellation option in favor of the owner. The currently occupied facilities can not be economically modified to meet the long term needs of the District. The District headquarters has a personnel strength of 342, resulting in the need for 62,500 square feet of office and special use space, and 9,000 square feet of common use space, for a total requirement of 71,500 square feet. The Galveston District mission requires a headquarters located in the area of major coastal engineering responsibility, which will remain functional under emergency conditions. A detailed study of the economic and other factors involved indicated that the most practical and economical solution to provision of the required facilities was construction of a new headquarters on currently owned public lands in Galveston, Texas. Total estimated cost: $12,690,000. Through FY 1990: $1,120,000 to complete design. Future years: $11,570,000 to initiate and complete construction.

(12) Additions and Betterment Division Laboratory - Missouri River Division (Continuing): The Missouri River Division Laboratory supports the Hazardous and Toxic Waste Design Center which has Corps-wide design responsibility for three major programs: (1) Super Fund work for the Environmental Protection Agency, (2) the Defense Environmental Restoration Account, and (3) the Installation Restoration Program. At present quality assurance testing, which is a governmental function, cannot be performed safely in the laboratory, and must be contracted out. Contracting out is more costly and also involves significant delays (up to 4 months). Ventilation system and other improvements are required to make space available and safe for quality assurance testing

involving hazardous wastes. Total estimated cost: $1,920,000. Though FY 1990: $1,910,000 for design and to initiate construction. FY 1991: $10,000 to complete construction.

(13) Replacement Division Laboratory - Ohio River Division (Continuing): This multipurpose laboratory is currently co-located with the Ohio River Division Finance & Accounting and Automatic Data Processing Center in a 47 year old building. The building has been determined to be unsafe and unsuitable for continued occupancy. Insulation throughout the building contains asbestos that must be removed and this will add to the cost of rehabilitation of the current structure. After an exhaustive study of all possible alternatives, the Division Commander decided to improve efficiency and economy by consolidating the finance and accounting and ADP elements with the division office staff located in the Federal Office Building. The General Service Administration has determined it cannot accommodate the laboratory in the Federal Office Building. The new laboratory, containing 22,000 square feet and housing 20 employees, will perform soils, rock mechanics, geologic, concrete and materials, water quality and environmental testing for the Huntington, Louisville, Nashville, and Pittsburgh Districts of the Ohio River Division. In addition the laboratory does testing work for the Buffalo, Chicago, and Detroit Districts of the North Central Division. Total estimated cost: $2,800,000 Through FY 1990: $2,670,000 for design and to initiate construction. FY 1991: $130,000 to complete construction.

(14) Erosion Protection System - Savannah District (Continuing): The river bank on the north side of the Savannah River has eroded and flanked the bulkhead at the Engineer Depot. The bulkhead has been undermined and has deteriorated to the point where it can no longer be maintained or repaired. The yard behind the bulkhead is being severely eroded from waves and bank suction caused by ocean going ships navigating the channel. The requested erosion protection system will involve removal of the existing deteriorated pilings and bulkhead, dressing of the slope, and the placement of a "fabriform" protection. The erosion protection system will be constructed along the new harbor line for the proposed widening project. It is essential that a new erosion protection system be constructed to prevent the existing bulkhead and debris from falling into the river and becoming a hazard to navigation and to prevent further damage to existing structures and facilities at the depot. Total estimated cost: $1,600,000. Through FY 1990: $800,000 for engineering and design and for the initial construction. FY 1991: $800,000 to complete construction.

b. Dredges:

(1) Replacement for Dustpan Dredge - Memphis District (Continuing): PL 95-269 directed the Secretary of the Army to reduce the Federal Dredging Fleet to a minimum level, but a level capable of fulfilling the requisites of emergency and national defense. PL 95-269 also indicates that the minimum federally owned fleet shall be maintained to technologically modern and efficient standards including replacements as necessary. It has been determined that the Corps minimum fleet of nonhopper dredges will include six vessels, three of which will be dustpan dredges so that adequate navigable channels can be maintained on the Mississippi River.

Dustpan dredges are essential to maintain navigable channels on the Mississippi River. That portion of the River between St. Louis and New Orleans serves as a major and vital artery for inland navigation with much of the nation's commerce moved on the river. The consequences of closing the River to navigation would be catastrophic to many segments of the economy. The Corps of Engineers fleet of three operational dustpan dredges, one each in St. Louis, Memphis, and Vicksburg, proved extremely valuable in completing emergency dredging on the River during the recent drought which produced the lowest river stages of this century. These vessels are quite old (54 to 56 year old) and have limited efficiency and reliability. Vessels of this age are difficult and costly to maintain and require extensive annual repairs. As technology changes, such as diesel engines replacing steam powered ones, replacement parts become scarce and have to be custom-made. Corrosion and fatigue of metal, which are common in older dredges, result in requirements for major rehabilitation, including the replacement of hull plating and scantlings, propulsion and pumping engines, and electrical and piping systems. It has become very difficult to recruit and retain personnel to operate the steam power systems on these dredges, in addition to requiring over twice the manpower of similar powered diesel systems. The design of the first dustpan dredge replacement was completed in November 1988 and the Corps of Engineers is ready to proceed with construction of the dredge. Total estimated cost (including attendant plant); $43,500,000. Through FY 1990: $27,000,000 for design and to initiate construction. FY 1991: $13,300,000 to complete construction of attendant plant and to continue construction of the dredge. FY 1992: $3,200,000 to complete construction of the dredge.

(2) Sidecaster Dredge Replacement - Wilmington District (Continuing): PL 95-269 directed the Secretary of the Army to reduce the Federal Dredging Fleet to a minimum level, but a level capable of fulfilling the requisites of emergency and national defense. PL 95-269 also indicates that the minimum federally owned fleet shall be maintained to technologically modern and efficient standards including replacements as necessary. It

has been determined that the Corps minimum fleet of nonhopper dredges will include six vessels, two of which will be sidecaster dredges.

Sidecaster dredges have been used successfully in the Carolina Coastal areas since 1965. These vessels are highly efficient in the construction and maintenance of channels of small dimensions through the shifting sand shoals of the middle Atlantic inlets. Dredging in unprotected waters, subject to constant change, rapid and breaking waves, requires dredging plant of unique design and capabilities. The two existing sidecasters were developed using World War II Navy vessels. Their age, plus the reduced number of sidecasters in the minimum fleet, make it imperative that a replacement dredge be constructed in the near term. Total estimated cost: $13,200,000. Through FY 1990: $2,130,000 for design. FY 1991: $300,000 to initiate construction. FY 1992: $5,800,000 to continue construction. Future years: $4,970,000 to complete dredge construction.

c. Other Floating Plant:

(1) Replacement Tender - Rock Island District (New): A replacement is needed for the tender "CRAIGEL". The tender, built in 1950, is a 40.5 foot by 11.5 foot by 5 foot draft boat that is used by the Project Maintenance Section as a floating crane tender during rock replacement, for strike removal jobs, and to push laden rock barges to the work sites. With only 165 horsepower and an eight foot eye level the boat is undersized for the current missions and cannot handle larger deck cargo and crane barges safely. Furthermore, its single screw design makes it harder to operate than a twin screw boat. Finally, due to its age, repair costs and requirement are increasing. During the past two years a rebuilt engine has been installed, and numerous hull repairs accomplished. The proposed replacement boat will greatly improve the safety of our operations due to increased size and horsepower, and its design will utilize the design currently being prepared for the PEKIN replacement. Total Estimated Cost: $1,300,000. Through FY 1990: $80,000 for design. FY 1991: $250,000 to complete design. FY 1992: $670,000 to initiate construction. Future Years: $300,000 to complete construction.

(2) Replacement Floating Crane - Nashville District (New): The existing Derrick Boat Number 8, that was built in 1955 and is used to support the 14 navigation projects in the Nashville District, is approaching the end of its economic life. If this vessel is not replaced, it will become necessary to replate the vessel's hull to the waterline. Also extensive repairs and overhaul of all the main operating components of the vessel is needed. The expenditure required for replating the hull alone will exceed the present value of the vessel. Even with the repairs, the current vessel would still be only a 25 ton floating crane and ineffective for most of the work on the navigation system. The

vessel's capability for emergency response, a factor becoming increasingly more significant as facilities deteriorate due to age and utilization, is also very limited. Furthermore recent modifications to some projects, which increased the size of the facilities, make a larger crane necessary to make repairs. Other missions include removal of debris from trash racks at hydropower plants in water depths of from 50 feet to 85 feet and lock maintenance on the Tennessee River Locks with lifts up to 100 feet. The current vessel does not have drum capacity to hold enough wire rope for all these missions. Also, the downtime for repairs is increasing each year. Total estimated cost: $2,000,000. Through FY 1990: $100,000 for design. FY 1991: $500,000 to complete design. FY 1992: $1,400,000 for construction.

(3) Replacement Crane Barge - Rock Island District (New): Crane Barge 762 consists of a crawler crane mounted on a spud barge. The current barge was built in 1955 and is approaching the end of its useful life. Structural support sections will require major work or replacement in the near term, if the barge is not replaced, at an estimated cost of $200,000. The age of the barge does not warrant such an expenditure to extend the life of the vessel by a few years. A suitable crane barge for long term lease are not available. Total estimated cost: $1,000,000. Through FY 1990: $50,000 for design. FY 1991: $500,000 to initiate construction. FY 1992: $450,000 to complete construction.

(4) Replacement Floating Crane - Memphis District (New): A replacement floating crane is needed to support the extensive fleet of revetment and dredging plant located at the Ensley Engineer Yard, Memphis District. Escalating repair expenses for the existing Derrick Boat Number 4401, built in 1944, indicate that replacement is needed at this time. The hull has deteriorated to the extent that the vessel is no longer seaworthy. Replating the hull at a cost of approximately $250,000 will not solve the problems with the antiquated equipment on the derrick boat. The existing vessel does not meet current safety standards and major modifications to the hull are required. To meet the current workload requirements, Derrick Boat 107 is being transferred from the St. Louis District to the Memphis District. Neither Derrick Boat 4401 nor Derrick Boat 107 has sufficient lifting capacity to adequately service the current Memphis District fleet or the Dredge "HURLEY" which is scheduled for delivery in 1992. Total estimated cost: $2,830,000. Through FY 1990: $80,000 for design. FY 1991: $2,750,000 to initiate and complete construction.

(5) Replacement Power and Shop Boat - Huntington District (Continuing): The existing Power and Shop Boat, Plant Number 184, was constructed in 1951 and has become inadequate for the requirements of the Huntington District. Recent dry docking inspections indicate that the hull will require complete replacement within the next two

to five years. Engine room space and storage space is severely limited precluding upgrading of current facilities. The lack of space on the Power and Shop Boat has resulted in the office work area for the supervisory and technical personnel being moved to a mobile office trailer which is mounted on a separate barge. The separate barge must be kept with and moved with the Power and Shop Boat; thereby, increasing overall operating costs. The existing boat has exceeded its economic life and costs to maintain the obsolete equipment are excessive and increasing annually. The proposed Power and Shop Boat is essential for scheduled major structural maintenance and emergency repairs resulting from navigational operations and accidents within the Huntington District. Lock outages at Gallipolis and Winfield Locks and Dams have a severe economic impact on the Ohio and Kanawha Rivers commercial navigation and industrial areas. The new boat will possess the electrical generating capacity necessary for the dependable and reliable power supply required during dewatering operations in addition to possessing a versatile mobile shop for all remedial work performed. The ability to reduce lock downtime for repairs makes this item of plant essential. Technologically advanced machinery, welding and shop areas will enhance the working efficiency, productivity, and safety of personnel. As well as being the primary operating base during navigation accidents, the boat can be rapidly mobilized to support salvage and recovery operations in case of national or natural disasters and emergencies. Total estimated cost: $3,800,000. Through FY 1990: $945,000 for design and to initiate construction. FY 1991: $2,855,000 to complete construction.

(6) Replacement Tender - Vicksburg District (Continuing): A replacement vessel for the tender WAILES currently assigned to the Vicksburg District is requested. The WAILES was built in 1935 and tends the Dredge JADWIN. As such it functions as an auxiliary work boat while the dredge is operational, moving other items of plant such as fuel and anchor barges around the project site. It is also used to properly align the pontoons on the floating discharge line. During the nondredging season, the tender WAILES is used on snagging operations to move crane barges. The existing tender is now underpowered and undersized due to the increased efficiency of the recently repowered Dredge JADWIN. In addition, the structural members and hull plating have deteriorated to the point where replating and repair are no longer economical alternatives. The proposed replacement is to be of all welded steel construction and powered by twin diesel engines developing approximately 1200 horsepower. With a larger tender it is expected that downtime while refuelling barges will be decreased, set up time will be reduced, and the safety of the crew and the Dredge JADWIN will be appreciably increased. Total estimated cost: $1,930,000. Through FY 1990: $1,280,000 to initiate construction. FY 1991: $650,000 to complete construction.

(7) Replacement Patrol Boat - Norfolk District (Continuing): A replacement for the patrol boat CRANEY ISLAND in the Norfolk District is requested. The CRANEY ISLAND was built in 1962 and is used for the collection of debris hazardous to navigation and the prevention of obstructive deposits on Chesapeake Bay and its tributaries. A replacement patrol boat is needed to resolve safety deficiencies related to the age and deteriorated condition of the existing vessel. Although the engine was rebuilt in 1980, it is again in need of a costly overhaul. The hull plating, the frames, the deck, the port holes, the bulwarks, the steering and rudder mechanisms, and the heating electrical systems are all in need of major repair or overhaul and the failure of these systems could endanger the crew and the vessel. Constant maintenance and expensive annual overhauls have clearly demonstrated that it is not economically feasible to rebuild the CRANEY ISLAND. Replacement of the existing 47 foot patrol boat would greatly reduce annual operations and maintenance costs. Total estimated cost: $770,000. Through FY 1990: $50,000 for design. FY 1991: $320,000 to initiate construction. FY 1992: $400,000 to complete construction.

(8) Replacement Derrick Boat - Pittsburgh District (Continuing): A replacement derrick boat is needed to support maintenance programs on 23 projects The existing Derrick Boat Number 7 was built in 1955 and has worked an average of 200 days annually providing scheduled maintenance and timely response in the event of emergencies to keep the waterways open to navigation. The Derrick Boat is used for steel erection, machinery installation, concrete placement, pile driving, maintenance dredging and snagging and emergency removal of obstructions to navigation. Many of the components of the existing vessel are obsolete and spare parts can not be found for them. The boat's live boom and live load lines are technically obsolete and do not meet OSHA requirements for hoisting personnel in work cages. Due to changes in the navigation structures over the last 30 years, the lifting capacity of the current equipment is not adequate to meet present requirements. In addition, extensive repairs and overhaul of the main engine, the generator, the dynamic drive, and the main hoisting assemblies in addition to hull replating will be required to extend the useful life of the current derrick boat. However, even with the extensive repairs the boat would still be only a 25-ton derrick boat incapable of performing all of its required missions. The proposed replacement would have larger capacity (65-ton) with a longer variable boom to insure it is fully capable of performing its required maintenance missions and any foreseeable emergency missions. Total estimated cost: $2,660,000. Through FY 1990: $580,000 for design. FY 1991: $1,060,000 to initiate construction. FY 1992: $1,020,000 to complete construction.

(9) Replacement Derrick Boat - Detroit District (Continuing): A derrick boat is essential for timely major structural maintenance and emergency repairs on Detroit

District navigation projects. The proposed derrick boat will be utilized at the Duluth Area Office on navigation projects in the Great Lakes. The present derrick boat COLEMAN was built in 1924 and has reached the point where continual restoration is no longer economically feasible. Machinery, including the large stiff leg derrick with its oil fired steam boiler, is obsolete with parts, service, and qualified operators not readily available. The US Coast Guard has indicated that the hull of the COLEMAN has deteriorated to the point where the sea worthiness of the vessel is questionable. Operations in, and transiting of the Great Lakes open waters involves a high risk to the vessel and its personnel. Currently the crew is not permitted aboard the vessel when it is being towed between harbors. Repairs to the hull and crane made during 1988 are expected to permit approximately two more years service under closely monitored and limited operations. The proposed new derrick boat based on other recent designs by the Marine Design Center will have new state of the art crane capacity making the operations much safer and allowing the crew size to be reduced from seven to four. The derrick boat COLEMAN's assigned function of placing large rock and derrick stone on major Lake Superior breakwaters and jetties continues to be a critical repair and maintenance mission. Total estimated cost: $3,800,000. Through FY 1990: $1,190,000 for design and to initiate construction. FY 1991: $2,610,000 to complete construction.

(10) Replacement Tow Boat - Tulsa District (Continuing): A tow boat is essential for timely structural maintenance and repairs on the Tulsa District portion of the Kerr-McClellen Arkansas River Navigation System. The tow boat SALLISAW is a twin screw boat built in 1970 prior to the opening of the waterway. The vessel functions as a power and positioning unit for the crane barge and other work barges during routine and emergency operations. The SALLISAW is underpowered and is inadequate for safe operations during times of high river flows. Past experience has shown that the current vessel cannot operate for an average of 73 days on the Verdigris River portion of the system and for an average of 130 days per year on the Arkansas River portion of the system. The proposed replacement tow boat would have rated engine capacity of approximately 2400 horsepower, which would allow operations during times of high flows when the most maintenance problems and emergency conditions occur. Total estimated cost: $2,200,000. Through FY 1990: $100,000 for design. FY 1991: $100,000 to continue design. FY1992: $1,040,000. Future years: $960,000 to complete construction.

(11) Replacement Crane Barge - Mobile District (Continuing): A 125-ton floating crane is needed to replace two smaller cranes, the UPATOI and the TALLAWAMPE, currently operational in the Mobile District. These cranes were built in 1909 and 1938, respectively, and are beyond economic repair. Furthermore neither meets current operational requirements. For these reasons, both have played noncritical standby and

supplemental roles in the District's lock and channel maintenance program in recent years. However, the opening of the Tennessee Tombigbee Waterway has almost doubled the District's lock and channel maintenance requirements, and, as a result, a fully operational crane barge is now required to support repairs to locks and other structures, to perform minor dredging, to place rip-rap, and the other missions. Total estimated cost: $2,900,000. Through FY 1990: $670,000 for design. FY 1991! $1,900,000 to complete design and to initiate construction. FY 1992: $330,000 to complete construction.

(12) Replacement Tow Boat - Rock Island District (Continuing): A replacement is needed for the tow boat ANDREWS which was built in 1954 for use on the Lower Mississippi River, the Gulf Coast, and the Intercoastal Waterway and was transferred to the Rock Island District in 1980. The vessel is used to push deck cargo barges in support of the rock placement and channel maintenance activities in the Rock Island District. The current vessel has become increasingly uneconomical to continue operating due to its age and size. Its direct drive transmission also increases the time needed to perform its mission on the Upper Mississippi River. It is necessary to have a full-time mechanic on board because of the direct reversing engine which must be shut off and restarted when switching from forward to reverse directions. A smaller, more fuel efficient boat with a minimum of 1600 horsepower is required. The vessel will be used throughout the Rock Island District operational area. Total estimated cost: $2,250,000. Through FY 1990: $280,000 for design and initiate construction. FY 1991: $1,970,000 to complete construction.

(13) Replacement Derrick Boat - Huntington District (Continuing): A derrick boat is essential for timely major structural maintenance and emergency repairs at Huntington District navigation projects. The vessel currently under construction will have the capability of removing and installing both upper and lower miter gates on the Kanawha River Locks and upper miter gates at Gallipolis Locks. The acquisition of this derrick boat will allow speedy repairs if a major accident to the gates should occur such as the one in March 1984. Spare miters gates are on site at Gallipolis. The ability of the proposed vessel to reduce lock downtime for repairs makes it essential, in order to provide continued navigation in this important segment of the nation's inland waterway system. Total estimated cost: $4,900,000. Through FY 1990: $4,900,000 for design and to construction.

(14) Replacement Debris Collection Boat - Baltimore District (Continuing): The existing drift collection boat "PATAPSCO" is 35 years old and in need of major repairs. Due to the increase of debris removal and operating costs, a more efficient boat is required (twin screws, increased lifting power, increased horsepower, along with more fuel

efficient engines). The age and maneuverability (single screw) of the current boat has a direct bearing on the efficiency and effectiveness of meeting the assigned mission. It becomes more difficult to continue to effectively meet the assigned mission with this older, less maneuverable boat. Cost to rehabilitate the vessel is estimated at $300,000 including design and contract management. Rehabilitation will not improve the performance of the vessel which was originally designed as a crew boat. The drift removal program serves to reduce damages, financial loss and safety hazards to vessels, their operators, and docking facilities. Total estimated cost: $730,000. Through FY 1990: $190,000 for design and to initiate construction. FY 1991: $540,000 to complete construction.

(15) Replacement Survey Boat - Norfolk District (Continuing): A 65-foot survey vessel, capable of operating in the Chesapeake Bay and its tributaries and offshore on the Virginia Coast, is needed by the Norfolk District as a replacement for the survey boat ADAMS, which was built in 1963 and has reached the end of its economic life. It is essential that the new vessel be placed into service before the ADAMS deteriorates to a point where it is unable of performing its functions safely and effectively. The vessel operates 250 days a year in order to perform surveys on the deep draft channels of Hampton Roads, James River, and Chesapeake Bay. Due to the long distances to work sites and its slow speed of 8 to 10 knots, many man-hours of work are lost to travel time. Further, the potential for breakdown combined with its low speed, jeopardizes the safety of personnel, especially when encountering fast-moving severe storms. This vessel is one of three vessels of standard design currently being acquired. Total estimated cost: $2,900,000. Through FY 1990: $900,000 for design. FY 1991: $1,100,000 to initiate construction. FY 1992: $900,000 to complete construction.

(16) Replacement Survey Boat - Jacksonville District (Continuing): A replacement for the survey boat CANAVERAL is required in order to meet the long range hydrographic survey requirements projected for the Jacksonville District. The CANAVERAL is a 45-foot, steel hull, aluminum cabin vessel which was acquired in December 1959 for survey and inspection assignments in the District. When the vessel was initially placed in service, the vast majority of its assigned projects were associated with sheltered, or bay disposal sites. In the past 10-15 years, however, the majority of the projects utilize offshore or open water disposal sites due to EPA and DER requirements. In order to effectively perform dredging surveys, environmental monitoring, and spoil placement verification at these outside disposal sites, up to 35 miles offshore, a vessel capable of speeds in the 25-30 knots-per-hour range is required. The top speed of the CANAVERAL is 15 KPH. The proposed vessel with a top speed of 25 KPH would reduce the travel time by 40 percent and therefore increase the available survey time of the vessel, as well as provide an extra margin for safety when surveying offshore locations. This vessel is one of three vessels

of standard design currently being acquired. Total estimated cost: $2,900,000. Through FY 1990: $900,000 for design. FY 1991: $1,100,000 to initiate construction. FY 1992: $900,000 to complete construction.

(17) Flat Deck Shop and Spud Barge - Nashville District (Continuing): A shop and spud barge (150' X 48' X 7') is needed to complement the capability of Derrick Boat #10 in the Nashville District. The barge will be multi-purpose and will be used in support of channel maintenance and navigation structure maintenance. Spud capability is necessary to maintain positions on dredge cuts and work below hydropower projects where high flows and various water elevations exist. The barge will also serve as the storage barge for necessary spare rigging, wire rope, hoisting blocks, dredging anchor buoys, pile-driving hammers, and associated equipment. The barge will be equipped with a shop building for welding, and for tools and spare parts storage. A machinery room below deck will have a diesel generator, and air compressor. Wash-down pumps and fire pumps will be installed and utilized during dewaterings for washing mud, silt, and debris from lock gates, work areas, and from floating plant during dredging and snagging operations. Deck reinforcement will be included to support a 75-ton mobile crane for setting steel sheet piling and making repairs to steel piling mooring cells. Total estimated cost: $1,800,000. Through FY 1990: $490,000 for design and to initiate construction. FY 1991: $1,310,000 to complete construction.

d. Fixed Land Plant:

(1) 2500 KIP Universal Testing Machine - Waterways Experiment Station (New): This testing machine is required to conduct a variety of load tests on advanced, ultra high strength concretes, metals, and composite materials. The current, a 50 year old, 440 KIP universal testing machine severely limits the size and strength of material specimens which can be tested, and the lack of stiffness of the machine results in questionable test data at high loadings. The proposed automated testing machine with servo controls will permit testing of advanced concretes and concrete composites. The need for these materials is becoming critical as the nation's infrastructure continues to age requiring major repairs without service interruptions. Total estimated cost: $750,000. FY 1991: $750,000 for acquisition and installation of the testing machine.

(2) Coastal Communications System Upgrade - Mobile District (Continuing): The emergency coastal communications system has proven to be of great benefit in the preparation for and recovery from the effects of hurricanes on the Gulf Coast. The system is based on a series of very high frequency (VHF) repeaters located at eight sites which form a communication backbone stretching from Bay St. Louis, Mississippi to near

Tallahassee, Florida. While the normal life of such equipment is only 15 years, the existing system has been in service for over 18 years. In addition spare parts for the system are no longer available. The failure of one or two critical components could leave the system unusable. The system will be upgraded from a VHF system to a modern microwave system and will be tied into the existing district micro-wave system. Total estimated cost: $5,300,000. Through FY 1990: $260,000 to complete design. FY 1991: $1,500,000 to initiate construction. FY 1992: $3,000,000 for construction. Future years: $500,000 to complete construction.

(3) Communications Replacement Program (Continuing): This is a grouped item request which was presented for the first time in the FY 1985 request to indicate overall radio communications annual requirements. There are no single item costs in excess of $700,000. The Corps of Engineers civil works telecommunications resources include radio communication systems and digital PBX systems which are used to perform specific communication functions in support of Corps projects and programs. These systems include fixed, floating plant, and vehicular stations which operate in the high frequency (HF) band for long haul communications; the ultra high frequency (UHF) band for fixed station, mobile and vessel communications for point-to-point communications; and, the microwave band for multichannel radio relay communication. A large percentage of these systems/networks have remained operational up to this point in time through the incremental replacement of components within the systems. In addition, the relocation of Corps activities into and within many GSA operated facilities have generated requirements for replacement of existing telephone systems. To insure continuity and the continuing operational capability of these systems, a systematic and scheduled replacement of these antiquated systems with systems of the appropriate concept and design is continuing. Estimated FY 1985-1990 program cost: $33,000,000. Through FY 1990: $33,000,000.

(4) Computer-Aided Design and Drafting Equipment (CADD) (Continuing): Due to the increasing role of CADD and continual improvements in hardware and software, CADD cannot be considered a one time capital investment. It requires timely upgrades and replacements of obsolete and outdated equipment. This includes hardware and software necessary for preparation of engineering drawings, project master plans, topographic data, etc., on projects such as dams, reservoirs, coastal and flood protection, and navigation structures. CADD Systems may include from 1 to 16 work stations, linked to a central mini-computer, complete with keyboard, digitizing tablet, and video display. Printers, plotters, and other peripherals may be shared between work stations. A Corps-wide contract for acquisition of CADD equipment was awarded in September 1987. By FY90, 36 Corps Field Offices will have purchased CADD systems through the contract. Corps-wide acquisition of CADD assures the full benefit that economy of scale can provide. CADD

systems in the engineering and construction industry are evolving at an ever increasing rate. Presently a cost effective tool for producing contract documents, the trend in CADD is to make drafting a by-product of the design process. Utilizing database technology, CADD is fast becoming a viable method of tracking project features from the planning stage into design and construction, and on through operation and renovation. The use of CADD linked to a project database is an important move towards a life-cycle approach to project management. With manpower levels unlikely to improve and a wide variety of new requirements being placed upon us, computer systems must increase employee productivity. Computer aided design and drafting provides an average manpower efficiency ratio of 3.5 to 1 and a benefit to cost ratio of 1.3 to 1. With advancements in design and database software, this benefit ratio will improve. Estimate for FY 1990: $5,000,000. FY 1991 Requirements: $10,000,000. FY 1992 Requirements: $10,000,000.

(5) Corps of Engineers Automation Plan (CEAP) (Continuing): The current Corps of Engineers mainframe automatic data processing (ADP) systems are scheduled for replacement under CEAP. Toward that end, on October 6, 1989, the Army awarded a contract to Control Data Corporation for an in-house system, consisting of a combination of centralized processing units and communication devices, to increase the overall efficiency of in-house processing. The contract provides for a pilot test involving acquisition, installation, and testing of hardware, software, and communications systems for the district and division offices of the Southwestern Division, for the Waterways Experiment Station, and for the Headquarter's Engineer Automation Support Activity. The full system architecture envisioned under the contract is a completely interconnected data communications system to replace the existing installed ADP hardware and software. During FY 1990 hardware, communications and support provided by the contractor during the pilot test will be evaluated for technical adequacy, economic justification, and ability to support Corps finance and accounting data management, project mamagement, and other anticipated uses. The results of the evaluation will serve as the basis for recommending whether additional hardware and/or communications devices, beyond those purchased under the pilot test, should be acquired. The Corps has no contractual commitment to CEAP beyond the pilot test, and no FY 1991 PRIP funds are currently programmed for CEAP. Full system installation costs at all district and division offices and at other Corps operating activities cannot be determined until the results of the pilot test have been fully evaluated, at which time the Assistant Secretary of the Army (Civil Works) will communicate to the Appropriations Committees the Army's planned disposition of Conference Committee Report language accompanying the Energy and Water Development Appropriations Act, 1990, Public Law 101-101. That Report language states as follows: "This appropriation will allow the Corps to proceed with the Pilot Test of the system. However,

no further funding will be provided beyond that included in this Act for additional acquisitions for CEAP. The conferees also direct that funds available to the Corps from within the Revolving Fund shall not be used for acquisitions beyond the Pilot Test." Through FY 1990: $25,000,000 for for acquisition and installation of equipment, including communications equipment, for the pilot test, operating system software, and training in the operation and maintenance of the equipment.

(6) Remaining ADPE Requirements (Continuing): Other capital investments are required for recurring ADPE needs. Included are general purpose microcomputers, graphics display terminals, interactive terminals, plotters, remote job entry devices, digital communications equipment supporting Corps ADPE. Studies conducted by the Office, Chief of Engineers, field offices, and laboratories have indicated the need for improvement in data gathering, handling, and communications, as well as a need for increased general office automation. Items include dedicated word processing centers, microcomputers used for such office functions as word processing, electronic mail, spread sheet applications, small data base applications, and communications with main frame computers for storage and retrieval of management information. Recurring ADPE is utilized to improve the interfaces between separate computer configurations, to improve the communications transmission capability, and to replace ADPE that has reached the end of its useful life. Microcomputers are justified on a cost benefit basis to support both management and business, and scientific applications. In summary, the demand for quick access to accurate information at operational levels has generated requirements for ADPE in functional areas where it was previously absent or in functional areas where modern upgrade is required. All remaining requirements will be reviewed for consistency with CEAP and the Corps of Engineers Information Systems Management Plan. FY 1990 Estimate: $11,000,000. FY 1991 Requirement: $12,000,000. FY 1992 Requirement: $12,000,000.

e. Tools, Office Furniture, and Equipment:

(1) Systems Furniture - North Central Division (New): In the summer of 1988 GSA advised the Division that its office would be relocated to permit renovation of the current building. Systems furniture is required to satisfy workstation needs within a smaller area since the office will be moving from a space costing $10 per square foot per annum to space renting in the range of $28 to $43 per square foot per annum. The value of space saved through the use of systems furniture could be up to $400,000 per year. The cost savings is projected to provide a payback in approximately three (3) years. Total estimated cost: $1,370,000. Through FY 1990: $170,000 for initial work stations. FY 1991: $600,000 for acquisition of furniture. FY 1992: $600,000 to complete acquisition of furniture.

(2) Systems Furniture - Philadelphia District (New): The present Philadelphia District work environment is poor and unsafe with insufficient floor space to accommodate personnel and the existing non-modular work stations. This is resulting in low morale in the work force. The District is reorganizing its functional divisions and modular/systems furniture is planned in order to utilize the existing space allocated by GSA in the Customs House. The new furniture and integrated partitions will create additional space as well as a professional environment and provide for more efficient use of the work area. The existing furniture is in poor condition and the existing partitions are in need of repair while providing no consistency in style, color, or height. In an attempt to increase the economic life of the furniture, refurbishment has already been accomplished once in the past and a second refurbishment is not considered cost effective since the furniture is extremely old and therefore has outlived its useful life. Total estimated cost: $1,450,000. Through FY 1990: $250,000 for initial work stations. FY 1991: $600,000 to major acquisition phase. FY 1992: $600,000 to complete acquisition of work stations.

(3) Systems Furniture - Headquarters, Corps of Engineers (New): This item is requested in anticipation of the relocation of the Headquarters, U.S. Army Corps of Engineers (HQUSACE) to other leased space within the District of Columbia. The last remaining 5-year option on the Pulaski Building lease was recently exercised. In anticipation of the likelihood that HQUSACE will have to relocate within this five year period, as well as to secure a more satisfactory work environment, the Corps is studying alternative leased space possibilities in the District of Columbia. The precise timing of the move will depend upon when suitable space is available, but could be as early as FY 1991. To the extent possible, the Corps will time delivery of the new furniture to coincide with its move into new quarters. GSA continues to encourage Federal agencies to acquire systems furniture as a means of achieving office space savings. In addition to maximizing space utilization, systems furniture provides increased privacy and aesthetically pleasing work environments which are conducive to increased worker productivity. The proposed project includes design of optimum office layouts and a model test of the systems furniture selected prior to full acquisition of the systems furniture for the entire HQUSACE staff. Total estimated cost: $7,500,000. Through FY 1990: $300,000 for design and model testing. FY 1991: $7,200,000 for the acquisition of furniture.

(4) Systems Furniture - Nashville District (New): Systems furniture has been installed in several areas of the District office and has resulted in increased productivity and improved employee morale. The district, now, proposes to acquire modular

system furniture to upgrade the balance of the work environment; thereby, further improving efficiency and productivity. Systems furniture will allow consolidation of sections, improved utilization of the limited space, reductions in noise levels, separated storage and work areas, improved lighting and electrical service, improved aesthetics, and increased efficiency by elimination of over crowded conditions. In addition, the new office furniture will better accommodate district automation efforts. Total estimated cost: $700,000. Through FY 1990: $200,000 for the initial acquisition for furniture. FY 1991: $ 500,000 to complete the acquisition of furniture.

(5) Systems Furniture - Pittsburgh District (New): Systems furniture installed in the Engineering Division has resulted in increased productivity and improved employee morale. The district, now, proposes to acquire modular furniture to upgrade the balance of the work environment; thereby, further improving efficiency and productivity. Work stations with electrical and telephone outlets for computers will improve office safety and reduce building modification costs. Better utilization of office space and resources will result in all areas. A Real Estate Division and a new branch in Engineering Division have been recently established in the District; however, no additional space is available from GSA. Systems furniture is the only way to provide the needed areas for these office to properly function. Total estimated cost: $1,080,000. Through FY 1990: $680,000 for the initial acquisition for furniture. FY 1991: $ 400,000 to complete the acquisition of furniture.

(6) Systems Furniture - South Pacific Division (New): Systems furniture installed in several offices of the South Pacific has resulted in increased productivity and improved employee morale. The Division, now, proposes to acquire modular system furniture to upgrade the balance of the work environment; thereby, further improving efficiency and productivity. In addition, the new office furniture will better accommodate automation and save space in the high rent downtown San Francisco areas. Total estimated cost: $1,270,000. Through FY 1990: $500,000 for the initial acquisition for furniture. FY 1991: $770,000 to complete the acquisition of furniture.

EXXON OIL SPILL

Mr. **Bevill.** On the oil spill recovery that the Corps has participated in, did Exxon reimburse the Corps expenditures?

General **Kelly.** No, sir. We have not been reimbursed. Our total expenses for everything, the use of the dredges, our district personnel, our overflights, our research and development program probably totals about $10 million.

We have submitted our bill, along with the bills of the rest of the Army, Air Force and Navy throughout the Department of Defense to the Coast Guard. They are now negotiating with the Exxon Oil Company for reimbursement. We have not yet received it.

CONCEPTUAL PLAN FOR COMPREHENSIVE STUDIES FOR ALABAMA–COOSA AND APALACHICOLA–CHATTAHOOCHEE–FLINT RIVER BASINS

Mr. **Bevill.** In November, I asked you to prepare a conceptual plan for a comprehensive study of the Coosa and Chattahoochee River basins to address the long-term water requirements of Alabama, Georgia, and Florida and alternative management plans for meeting the short-term water supply needs of the area.

We have reviewed the plan you developed and look forward to working with you on it.

At this point, I would like to ask you a few questions about the plan for the record.

Please describe the Corps' approach for conducting the comprehensive studies.

General **Kelly.** We have recently forwarded the plan to you. It is basically a two-phase approach. The first phase is short-term in which we will look at three specific areas in the very near future, that is roughly for the next three years, and provide some needed water supply almost immediately. That includes the city of Chatsworth in the upper reaches of the Alabama-Coosa River Basin. They need about 1,000 acre-feet from Carters Lake.

We have the city of Cartersville and the Cobb County-Marietta Water Authority in Georgia which need about 14,600 acre feet from Lake Alatoona. Of course, for the city of Atlanta, we would like to extend the current allocation they are now getting for another three to four years.

That effort will probably be concluded within the next year.

The second phase is probably the most important phase. That is where we would like to do a comprehensive study in conjunction with the three states, Alabama, Georgia, and Florida, to address the real water supply problems and the water allocation problems in that region. That will probably be about a four-year effort. Depending upon what we come up with in the first year, and that includes our coordination with the three states, it may cost anywhere from $3.5, perhaps to $5 million.

We are geared to do that under our own Operations and Maintenance authority. We have the necessary authority to initiate that study almost immediately.

LOCAL PARTICIPATION

Mr. Bevill. So there will be no requirement of local participation and the Federal funds are available for these studies to begin?

General Kelly. We do not need anymore local cost participation or cost sharing. However, as you are well aware, the ultimate solution to the water problems in the three state area is going to involve the states themselves.

What we would like to do is to set up an interstate coordinating mechanism with the Corps assisting the three states to really address the problems; but the final solution will have to be negotiated among the states themselves.

Mr. Bevill. Along that line, I understand, the Corps and the Bureau of Reclamation, which you work closely with, of course, have set precedents in this field before. There are precedents.

In other words, once you get the information and get the study completed, the precedent that has been established is for the governors of those states involved, in this case, Georgia, Alabama, and Florida, to sit down with the information they have received and work out an equitable plan between the three of them. At that point they will have all the possible information available on the impacts from the long range standpoint as well as what you have recommended for the short range.

General Kelly. Absolutely, sir.

Mr. Bevill. Is that true?

General Kelly. That is very true. In fact, that is the real key to the success. We, the Corps of Engineers, cannot solve that problem alone.

Mr. Bevill. Yes. So, my next question is how important do you consider state and local involvement in the study?

General Kelly. It is paramount, sir.

LAKE LANIER

Mr. Bevill. What is the status of the post authorization change notification report for Lake Lanier?

General Kelly. In that case, which has to do with reallocation in the intermediate time frame, roughly for the next 20 years, to the year 2010, there has been, as you know, a series of public meetings conducted in Georgia and Alabama primarily to get the local input and the state input.

Mobile district in the South Atlantic Division is now addressing those concerns. They will have to fold them into the report.

The final solution will involve the three states getting together to solve that problem with the information that will be provided them by the South Atlantic Division.

Mr. Bevill. I understand this type situation has occurred many times, particularly in the west where there has been, of course, many years of shortages of water.

General Kelly. That is correct, sir.

Mr. Bevill. I will submit additional questions that you can answer for the record.

[The information follows:]

INFRASTRUCTURE

Mr. BEVILL. Under what authority would you be carrying out the Federal strategy for America's Infrastructure effort?

General KELLY. We currently have authority to open discussion with both Federal and non-Federal interests concerning the need for an integrated national infrastructure policy and possible strategies for carrying out that policy. However, there is no existing authority to actually develop the infrastructure strategy. The Corps need for authority is under discussion with the Office of Management and Budget for possible inclusion in the Army's Civil Works Legislative Program for 1990. Such a legislative proposal would authorize development of an infrastructure strategy and establish an Infrastructure Advisory Board to oversee that development.

Mr. BEVILL. Have any other Federal agencies requested funds in FY 1991 in support of this effort? Would those agencies contribute funds in future years?

General KELLY. No other Federal agencies have requested funds in FY 1991 to support this effort and we do not anticipate those other agencies which would be members of the Advisory Board to contribute funds in future years. However, all agencies would be expected to support the work of the Board using existing personnel.

Mr. BEVILL. Have you contacted the other Federal agencies to learn of their desire to participate in this program?

General KELLY. We have not yet opened discussion with other Federal agencies to determine if they desire to participate in this program.

Mr. BEVILL. What organizational element of the Corps of Engineers will lead the effort?

General KELLY. The Corps Civil Works Directorate would be assigned the lead to assist the Army's representative on the Board, as well as other Federal agency participants, in developing the Federal infrastructure strategy.

Mr. BEVILL. Will state and local governments and the private sector have an active role in developing the Federal infrastructure strategy?

General KELLY. While the Federal Infrastructure Advisory Board would be made up exclusively of Federal agency representatives, we anticipate early and continuing dialogue with states and other interested public and private entities. We believe the Federal strategy for America's infrastructure effort must be a partnership between the public and private sector, and therefore, it is important for state and local governments and the private sector to have an active and meaningful role in the development of this strategy.

NATIONAL WATER MANAGEMENT DURING DROUGHT STUDY

Mr. BEVILL. General Kelly, last year, in response to a question you stated that the decision to continue with the National Water Management During Drought study would be made after the first phase was reviewed in Washington, which you estimated would be February 1991. It appears you have made that decision to continue. What is the basis for that decision?

General KELLY. To date, we have not made a decision to continue with the study. We are about four months into this years's study, therefore it is premature to speculate on its outcome and specific recommendations. However, we have already identified areas where changes to our current response procedures could result in more efficient and improved drought response. We are currently assessing the Nation's existing capacity to deal with droughts, and are looking at measures that might be implemented to improve the Nation's readiness to respond to future droughts. We feel optimistic that measures identified during the first year's study will contain alternatives worthy of further consideration and evaluation which would be undertaken in the second and third years of the study. Accordingly, we have identified funds in our FY 1991 budget to continue with the study. The Corps of Engineers recommendations whether to continue or not will be submitted in late FY 1990 to Mr. Robert W. Page, the Assistant Secretary of the Army (Civil Works).

Mr. BEVILL. What organizational element of the Corps is carrying out the National Water Management During Drought study.

General KELLY. The day to day study management is being done by the Institute of Water Resources, which is a part of the Corps Water Resource Support Center. Study oversight and direction is being provided by Headquarters Policy and Planning Division.

Mr. BEVILL. What will the final product of the National Water Management During Drought study be?

General KELLY. The final form of the report has not been defined, however, we would anticipate that the report will look at the Nation's existing capacity to deal with droughts, including related water resources infrastructure, drought management practices; identify measures that might be implemented to improve the Nation's readiness for drought; identify state and regional priorities for solutions; evaluate existing models and methods of allocating water more effectively among competing needs; test these models and methods using case studies involving Corps of Engineers reservoirs; identify the need for increased storage capacity and the extent of the Federal and Corps role and interest in these; and make recommendations for improved management of available resources. Upon completion of the first year's effort we will have a better idea as to what the final product would be. We are finding that through the coordination and discussions with other agencies and various water resource groups our perception of the problems and thus the needed response measures are being continually refined. Therefore it is difficult to define the final form of the report at this time.

COOPERATION WITH OTHER FEDERAL AGENCIES AND NON-FEDERAL INTERESTS RIVER BASIN AND REGIONAL PLANNING COMMISSIONS

Mr. BEVILL. Please provide more detail of how the $200,000 requested for cooperation with Federal and state agencies in authorized, but unfunded investigations for cooperation with River Basin Commissions, etc., is utilized.

General KELLY. These funds are used to cooperate with River Basin and Regional Planning Commissions such as the Great Lakes Commission, the Delaware River Basin Commission, or the Northwest Power Planning Council. In cases where River Basin Commissions no longer exist, it is used to cooperate with Federal and state agencies and public interest groups which have picked up the functions formerly performed by the Commissions, such as State Departments of Natural Resources, Federal/State Water Resources Steering Committees and Water Resources Task Groups.

The funds are used for river basin planning activities for which there are no other sources of funds. The funds cover coordination with groups having oversight on legislation and policy making on water resources development, including attendance at meetings, providing technical advice and assistance and discussions of general water resources topics and specific subjects which are not budgeted such as hazardous and toxic spills response plans or drought contingency plans.

PLANNING ASSISTANCE TO STATES

Mr. BEVILL. Is the amount requested for Section 22 Planning Assistance to States sufficient to fund the anticipated requests from state governments in FY 1991 if the proposed cost sharing is not enacted?

General KELLY. No, sir, the requested funds are predicated on ten percent cost sharing in the budget year and thus provide the necessary funding to respond to same number of high priority requests as we did in FY 89.

Mr. BEVILL. How many studies were funded under the Section 22 program in FY 1989? Did you have sufficient funds to honor all requests for assistance?

General KELLY. In FY 89 we were able to fund 139 studies with funds totaling $4.854 million. We had received requests for 244 studies totaling more than $14 million, well above the $6 million cap set forth in P.L. 99-662.

Mr. BEVILL. Has the legislation that authorizes cost sharing of the Section 22 program been introduced? How will the collections be handled under the proposed legislation?

General KELLY. The Administration is in the final stages of preparing a draft WRDA 90 legislative proposal, which will incorporate the proposal to authorize cost sharing of this program. We envision that a Cost Sharing Agreement for the work will be negotiated and executed with the state prior to the initiation of work.

SPECIAL INVESTIGATIONS

Mr. BEVILL. The budget request includes $3,000,000 for special investigations and reports funded under Cooperation with Other Federal Agencies, States, and non-Federal interest. Please provide for the record some specific examples of the reports prepared with those funds.

General KELLY. Special Investigations and Reports funds are for investigations of limited scope needed to reply to requests from outside the Corps of Engineers for information relating to unfunded projects or activities. Specific examples of investigations prepared in FY 1989 include:

* the Lower Mississippi Valley Division's early participation in the Gulf of Mexico program, an interagency effort for resolving complex environmental problems associated with man's use of the Gulf of Mexico;

* the Detroit District's responses to numerous requests for information regarding the effects of current and projected lake levels on erosion and accretion processes;

* review of other agencies' Environmental Impact Statements including the Boston Harbor Wastewater Treatment Plan and the Atlantic Salmon Restoration Program;

* and numerous preliminary investigations of which South Fork Wildcat Creek, Tippecanoe County, Indiana; Indian Creek, Morgan County, Indiana; and Wabash River, Vigo County, Indiana led to reconnaissance studies under the Continuing Authorities Program.

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1991

SUMMARY OF ALL APPROPRIATIONS

Appropriation Title	FY 1990 Appropriation 1/	FY 1991 Request	Increase (Decrease)
	$	$	$
General Investigations	129,251,000	135,400,000	6,149,000
Construction, General	1,083,811,000 2/	1,226,000,000 3/	142,189,000
Operation and Maintenance, General	1,358,219,000 4/	1,389,500,000 5/	31,281,000
Flood Control, Mississippi River and Tributaries	330,296,000	334,500,000	4,204,000
Regulatory Program	68,455,000	75,100,000	6,645,000
Flood Control and Coastal Emergencies	0	25,000,000	25,000,000
General Expenses	126,997,000	136,100,000	9,103,000
Revolving Fund	9,860,000	0	(9,860,000)
Permanent Appropriations (Estimated)	12,000,000	12,000,000	0
Total	3,118,889,000	3,333,600,000	214,711,000

1/ Reflects reductions required by the final sequestration order signed by the President on 27 Dec 89.
2/ Includes an estimated $117,334,000 to be derived from the Inland Waterways Trust Fund in FY 90.
3/ Includes an estimated $132,800,000 to be derived from the Inland Waterways Trust Fund in FY 91.
4/ Includes an estimated $161,704,000 to be derived from the Harbor Maintenance Trust Fund in FY 90 and $19,720,000 from Special Recreation Use Fees.
5/ Includes an estimated $485,500,000 to be derived from the Harbor Maintenance Trust Fund in FY 91 and $20,000,000 from Special Recreation Use Fees.

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Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1991

SUMMARY OF BUDGET REQUEST FOR INLAND WATERWAYS TRUST FUND PROJECTS

Project	Construction, General Appropriation $	Inland Waterways Trust Fund $	Total $
Bonneville Navigation Lock, OR & WA	34,500,000	34,500,000	69,000,000
Gallipolis Locks and Dam, WV & OH	23,150,000	23,150,000	46,300,000
(Locks)	(22,202,500)	(22,202,500)	(44,405,000)
(Dam Rehabilitation)	(947,500)	(947,500)	(1,895,000)
Grays Landing, Lock and Dam 7, PA	15,500,000	15,500,000	31,000,000
Melvin Price Lock and Dam, Second Lock, IL & MO	37,500,000	37,500,000	75,000,000
Point Marion, Lock and Dam 8, PA	14,150,000	14,150,000	28,300,000
William Bacon Oliver Lock and Dam, AL	2,750,000	2,750,000	5,500,000
Winfield Locks and Dam, WV	8,100,000	8,100,000	16,200,000
Gross Total	135,650,000	135,650,000	271,300,000
Reduction for Anticipated Savings and Slippage	(2,850,000)	(2,850,000)	(5,700,000)
Net Total	132,800,000	132,800,000	265,600,000

NATIONAL ESTUARY PROGRAM
AND
NORTH AMERICAN WATERFOWL MANAGEMENT PLAN

Mr. BEVILL. The budget request includes funds to initiate cooperation with Federal and state agencies in the National Estuary Program and the North American Waterfowl Management Plan. Will these be continuing programs? What are your estimates of future funding requirements?

General KELLY. The Corps participates in the National Estuary Program at the invitation of the Environmental Protection Agency or a state's Governor. That participation is likely to continue as long as the EPA, through the Congress, is able to bring new estuary studies on line. The request for Fiscal Year 1991 is $200,000 and future funding requirements for Corps participation in the program are anticipated to be in that general range.

The Corps non project-related support to the North American Waterfowl Management Plan may be expected to continue until the goals of the plan are met. This is likely to be several years into the future, as the task is great, complicated, and requiring close, ongoing coordination and cooperation between Federal and state agencies and private sector participants. We are uncertain how much support will be requested of the Corps, since Corps participation in non project-related activities is at the invitation of the Fish and Wildlife Service and their non-Federal joint venture partners. The request for Fiscal Year 1991 is $200,000 and funding requirements are anticipated to be in that general range. Participation in both programs to determine if adjustments in funding are needed in future years will be monitored.

FLOOD PLAIN MANAGEMENT SERVICES

Mr. BEVILL. Is the amount requested for Flood Plain Management Services sufficient to fund the anticipated requests for information in FY 1991 if the proposed cost sharing is not enacted?

General KELLY. No, Sir. The requested funds are predicated on 10 percent cost sharing in the budget year and thus are 10 percent less than the amount necessary to provide the same level of funding that was used to respond to high priority requests in FY 1989.

Mr. BEVILL. Has the legislation authorizing cost sharing for Flood Plain Management Services been introduced? How will the collection be handled under the proposed legislation?

General KELLY. The Administration is in the final stages of drafting legislation for the Water Resources Development Act of 1990. The draft contains a provision to phase in cost sharing begining with 10 percent in FY 1991, 30 percent in FY 1992, and 50 percent in FY 1993 and thereafter. We plan to recover the non-Federal share of costs for the Program by using a combination of fee schedules and cost sharing agreements based on the types of technical services provided.

Mr. BEVILL. Will any services provided under the Flood Plain Management Services Program be exempt from cost sharing?

General KELLY. Many of the requests for assistance under this Program can be answered by telephone in a very short period of time by using readily available data. Because of the relatively high administrative costs of charging for these services, we are considering providing the majority of this type of quick turn-a-round responses without cost.

COASTAL FIELD DATA COLLECTION

Mr. Bevill. How will the additional $500,000 requested for wave gaging under Coastal Field Data Collection program be utilized?

General Kelly. The increase will generate the following benefits in FY 1991:

a. A portion will be utilized to cover inflation in the operating cost of the current Field Wave Gaging Program which consist of about 40 wave gages which have been operating for about 8 years each at sites primairly on the West Coast of the United States and in Florida.

b. It would allow expansion of the network to sites that would provide wave data for portions of the coastlines of Illinois, Indiana, Maine, Maryland, Virginia, North Carolina, South Carolina, Louisiana, and Texas.

c. Also, we will be able to produce the cumulative summaries and wave climate projections for those sites that are reaching statistically significant measurement periods, greater than ten years.

Mr. Bevill. Why have your efforts to reestablish a joint wave gaging program in Alaska failed?

General Kelly. The jointly funded effort to obtain mutually useful wave data in Alaska has been on hold since revenues from oil production dropped several years ago. The Alaska Department of Transportation and Public Facilities was unable to support the program from their decreased budget. Subsequently, funding for Corps projects and this program was reduced, leaving both the State and the Corps with inadequate funding for the program. Each agency has undertaken limited project related data collection, and both have maintained lines of communication so that each is informed about data collection by the other. The Coastal Field Data Collection program has funded an effort by the Artic Environmental Information and Data Center to identify and report on all data that has been collected in Alaska waters. That effort is underway. Representatives of the agencies are scheduled to meet in the near future to consider ways to work together to improve the data base necessary for coastal design.

INLAND WATERWAY TRUST FUND BALANCE

Mr. BEVILL. We note that under the Transportation Systems program you are developing a computer model to evaluate the impact of the inland navigation project funding schedules on the Inland Waterways Trust Fund balance. Please provide the Committee with a five-year projection, beginning in FY 1991, of the Inland Waterways Trust Fund balance.

General KELLY. The Trust Fund balance at the end of FY 88 was $295.4 million and at the end of FY 89 $304.9 million.

There are three basic assumptions used in projecting the Trust Fund balance. They are:

1) The latest cost estimates are correct.

2) The OMB inflation and interest factors of 2% and 6% respectively.

3) Fuel tax increases to $.20 per gallon by 1995 as follows:

1990 = $.11
1991 = .13
1992 = .15
1993 = .17
1994 = .19
1995 = .20

The projected Trust Fund balance at the end of each FY is as follows:

1990 = $247.2 million
1991 = $185.3 million
1992 = $138.9 million
1993 = $135.0 million
1994 = $169.4 million
1995 = $169.4 million

EARTHQUAKE RESISTANCE OF CORPS STRUCTURES

Mr. BEVILL. Following the Loma Prieta Earthquake last October, a lot of media attention was given to the earthquake resistance of structures throughout the United States. Are you confident that Corps of Engineers structures have been designed and constructed to withstand the effects of earthquakes. What research and development work do you have underway in this field?

General KELLY. All of our important structures have been designed with earthquakes in mind. However, the state-of-the-art in earthquake engineering has been changing rapidly in recent years, and we have been continuing to re-evaluate structures, and making modification when appropriate. Our emphases has been on structures that, if they failed, could cause loss of life, or major property damage. It is not feasible, economically nor technically, to completely avoid the kind of damage that occurred to Pajaro River levees in Santa Clara.

We are reasonably confident our critical structures are safe, or are being studied for modification, but given the present state-of-the-art, there can be no 100% guarantees.

Within the Civil Works R&D program, there is some research ongoing in the areas of liquefaction and ground response. In 1990, our projected research expenditures are: liquefaction $345,000 and seismology and ground response $189,000.

FLOOD CONTROL AND NAVIGATION RESEARCH BENEFITS

Mr. BEVILL. The justification material states that the Flood Control and Navigation research program is concerned with improving cost-effectiveness in design and construction. Please provide the Committee with some specific examples of cost savings that resulted from your research and development activities.

General KELLY. Specific examples of cost savings from our Flood Control and Navigation Research Programs include:

o A ship simulator, similar in concept to aircraft simulators, was developed to include pilot expertise and experience as well as ship characteristics, local water currents, aids to navioation, and visual limitations, for example, fog or darkness, into navigation channel design. Savings since the first use in FY 1983 have varied up to $20,000,000 for the Sacramento River Deepwater Channel, with an average approaching $2,000,000 per application. Over 30 studies have been completed to date.

o Rock, known as riprap, is used to protect channel banks and bottoms from erosion. Improved understanding of the stability of the riprap has allowed a wide range of sizes and reduced layer thickness to be used. This has made it possible to relax the rock size specifications required of commercial quarries, allowing procurement of less costly rock, and reduced quantities of rock. Savings since the first use of the improved criteria in FY 1985 are estimated as $2,000,000. Potential savings for future projects vary up to $1,000,000 per project depending on project size.

o Basins below outflow pipes at dams are designed to dissipate high flow and energy to prevent loss of riprap bottom protection and prevent erosion of downstream banks and channels. Improved design criteria have resulted in substantial benefits since FY 1986. Specific examples of estimated future maintenance savings are $500,000 for Nolin Dam, KY, and $500,000 for R.D. Bailey Dam, WV.

o Development of design criteria for low lift navigation locks has eliminated the need for physical model studies. Estimated savings to date is $2,200,000. Recent examples are $300,000 at Lock and Dam 26 on the Mississippi River and $300,000 at Omsted Lock and Dam on the Ohio River.

o Improved design procedures for determining the required width of bends in navigation channels have resulted in a decrease in the amount of material dredged from the bend to maintain navigable depths. Presently savings are estimated to be $3,700,000 per year. Recent applications have included the Tennessee-Tombigbee Waterway, MS, White River, AR, and Red River, TX, navigation projects.

WATER RESOURCES PLANNING STUDIES

Mr. BEVILL. What organizational element of the Corps undertakes the Water Rosources Planning Studies research and development effort?

General KELLY. The Corps of Engineers Institute for Water Resources is performing the research and development for the Water Resources Planning Studies program.

CPAR PROJECT SELECTION

Mr. BEVILL. Are projects selected for inclusion in the CPAR program carefully screened to ensure they do not duplicate research already being performed under your regular R&D program?

General KELLY. The CPAR program of research and development of new concepts and ideas that would enhance construction productivity does not duplicate ongoing R&D efforts. The Corps R&D laboratories, in evaluating industry proposals, ensure that the proposed efforts do not duplicate on-going Corps R&D projects or work being done by others.

CLIMATE CHANGE IMPACT PROGRAM

Mr. BEVILL. Will the Corps role in the Government's Climate Change Impact Program be limited to the study of the impacts of climate change on design, construction and operation of Corps of Engineers projects?

General KELLY. Although one of the Corps major missions revolves around the concern for its authorized civil works projects, there are other missions which must be considered in a study of impacts of climate change. Examples are Corps Civil Works responsibilities involving wetlands, navigation, and coastal and riverine facilities other than at authorized projects.

MAGLEV

Mr. BEVILL: Secretary Page's testimony before this committee this year stated that the Corps is not authorized at this time to conduct the Magnetic Levitation Transportation Pilot Program. Has legislation been introduced that would authorize the Corps to undertake the program?

General KELLY: There is no current proposal before Congress. Language was included in the Fiscal Year 1990 Budget Reconciliation Act that would have authorized the Corps to undertake the program. That language was later removed along with all other non-budget reducing provisions. The Corps need for authority is under discussion with the Office of Management and Budget for possible inclusion in the Army's FY 90 legislative package.

Mr. BEVILL: The justification material states that Federal costs for the MAGLEV program beyond FY 1991 cannot be provided until a cost sharing arrangement with the private sector is defined. Can you give the Committee an estimate at this time of the total cost and length of this program?

General KELLY: A very approximate estimate of the total cost of the program, including designing and building a demonstration project is $1 billion, with an estimated program duration of seven to nine years. This estimate is derived from the June 1989 Executive Report of the MAGLEV Technology Advisory Committee. Committee members represented industry, universities, national laboratories, and government agencies. The Federal share of the total cost cannot be determined until appropriate public and private roles have been defined. We do not envision a Federally owned and operated MAGLEV system and the appropriate Federal role will be based on this philosophy. I should also note that the unified Federal plan for MAGLEV, which is presently under coordination with the other Federal agencies, provides for a major decision point in FY 92 on the potential of MAGLEV in this country. Sufficient information should be available at that time whether to proceed with the remainder of the pilot program.

Mr. BEVILL: When will the detailed implementation plan for the MAGLEV program you propose to undertake in FY 1990 be completed?

General KELLY: The final detailed implementation plan will be available in the Spring of 1992. However, we are scheduling a draft implementation plan to be available in early summer of this year.

SUPPORT FOR INLAND WATERWAYS USERS BOARD

Mr. BEVILL. Your request for support for the Inland Waterway Users Board represents a significant increase over your request for FY 1991. Please justify these increases for both the expenses of the Board and Corps of Engineers expenses.

General KELLY. The increase in costs of the Inland Waterway Users Board is for two purposes:

1) The Inland Waterway Users Board has increased the number and complexity of requests for information and analysis on inland waterway investment decisions.

2) The Inland Waterway Users Board has requested that many of its meetings be held at locations which would allow a visit and on-site briefing for projects which have priority for construction starts. This adds another day to each meeting and results in higher costs for travel and per diem and staff support.

CONTINUING AUTHORITIES PROGRAMS
STATUS OF PROJECTS ADDED IN FY 1990

Mr. BEVILL. What is the status of the projects under the Continuing Authorities Programs added by the Congress in FY 1990?

General KELLY. We will supply the status of these projects for the record, Mr. Chairman.

[The information follows:]

STATUS OF CONTINUING AUTHORITIES PROJECTS ADDED BY CONGRESS IN FY 1990

PROJECT	STATUS
BEDFORD, IA (SEC 205)	FEASIBILITY STUDY UNDERWAY
ROSEAU RIVER, DUXBY LEVEE, MN (SEC 205)	PROJECT FEASIBILITY UNDER REVIEW. WILL PROCEED AS A REGULAR CONSTRUCTION PROJECT.
SALMON RIVER, ID (FRAZIL ICE) (SEC 205)	FEASIBILITY STUDY UNDERWAY
BURTON ROAD, MORGAN CO., IN (SEC 14)	SCHEDULED FOR CONSTRUCTION FY 90
CLAY CITY, KY (SEC 205)	RECONNAISSANCE STUDY UNDERWAY
FAIRGROUND PARK, CLARKSVILLE, TN (SEC 14)	FEASIBILITY STUDY TO BE INITIATED IN FY 90
MONTICELLO AVE, CHICAGO, IL (SEC 205)	RECONNAISSANCE STUDY UNDERWAY
FEATHER CREEK, CLINTON, IN (SEC 205)	FEASIBILITY STUDY UNDERWAY
LITTLE TURTLE CREEK, SULLIVAN CO., IN (SEC 14)	PLANS AND SPECIFICATIONS UNDERWAY
SOUTH FORK OF WILDCAT CREEK, TIPPECANOE CO., IN (SEC 14)	
COUNTY ROAD 7E	SCHEDULED FOR CONSTRUCTION FY 90
COUNTY ROAD 1000E	FEASIBILITY STUDY UNDERWAY
WABASH RIVER, VIGO CO., IN (SEC 14)	CONSTRUCTION UNDERWAY
DINNER KEY BEACH LANDING, FL (SEC 103)	NO EXPRESSION OF INTEREST FROM LOCAL INTERESTS
SOUTH BRUNSWICK, GA (SEC 107)	CONSTRUCTION UNDERWAY
WATSON ISLAND PARK, FL (SEC 103)	RECONNAISSANCE STUDY TO BE INITIATED IN FY 90 UNDER GENERAL INVESTIGATIONS PROGRAM. PROJECT LIKELY TO EXCEED SECTION 103 LIMITS.
BISBEE, AZ (SEC 205)	RECONNAISSANCE STUDY UNDERWAY
CARLESBAD BEACH, CA (SEC 103)	RECONNAISSANCE STUDY UNDERWAY

STATUS OF CONTINUING AUTHORITIES PROJECTS ADDED BY CONGRESS IN FY 1990

PROJECT	STATUS
LAKE ELSINORE, CA (SEC 205)	PLANS AND SPECIFICATIONS UNDERWAY
MISSION ZANJA CREEK, CA (SEC 205)	PLANS AND SPECIFICATIONS UNDERWAY
MOHAVE CO., FLOOD WARNING, AZ (SEC 205)	RECONNAISSANCE STUDY TO BE INITIATED IN FY 90
MILL CREEK, FORT SMITH, AR (SEC 205)	CONSTRUCTION UNDERWAY
SANTA FE RIVER, SANTA FE, NM (SEC 14)	PROJECT COST WOULD EXCEED SECTION 14 LIMITS. RECONNAISSANCE STUDY UNDERWAY WITH GENERAL INVESTIGATIONS FUNDS.
WHITE RIVER, BATESVILLE, AR (SEC 205)	PLANS AND SPECIFICATIONS UNDERWAY

DREDGING RESEARCH PROGRAM SAVINGS

Mr. BEVILL. Have any of the accomplishments of the Dredging Research Program to date resulted in actual cost savings? If so, please provide the Committee with the data that document those savings.

General KELLY. The savings to date from the Dredging Research Program include:

o Automated Real Time Tide Estimating System installed in Charleston and Jacksonville Districts. Estimated savings through first quarter FY 1990 as a result of this research effort are $4.3 million.

o Improved debris protection techniques were provided to Philadelphia District for design of the Indian River Inlet, Delaware, fixed plant sand bypass system. Annual savings realized as a result of this research are estimated at $100,000.

o Numerical model applications to dredged material disposal site stability for New York Bight and for Miami and Fort Pierce, Florida, resulted in acceptance by state and federal agencies involved with site designation approval. The time and effort necessary for site designation activities was considerably reduced, but no dollar amount of savings is available.

o The Drilling Parameter Recorder developed for use in geophysical investigations was used by New York District to establish "top of rock" on a specific project with a cost avoidance of $50,000 over conventional methods and also allowed quicker completion of the project.

o San Francisco District used a Dredging Research Program developed waterborne geophysical exploration system that resulted in savings of approximately $800,000 in exploration and testing costs for John F. Baldwin Ship Channel project.

DREDGING RESEARCH PROGRAM ESTIMATING

Mr. BEVILL. Why have you found it necessary to evaluate commercially available estimating procedures for contract dredging?

General KELLY. Commercial estimating packages may contain databases that are superior to those presently available in the Corps of Engineers. They may have a broader base and more recent information. Our evaluation compares the quality of such data with Corps data to discern the best basis for Corps estimating procedures. Also, commercial packages contain options for estimating certain dredge system features, such as consideration of booster stations, that the Corps estimating system does not conveniently provide.

WETLANDS RESEARCH PROGRAM

Mr. BEVILL. Why is the Wetlands Research Program being funded under the Operations and Maintenance account? What benefits will the O&M program realize as a result of this work?

General KELLY. The Wetlands Research Program is funded in the Operations and Maintenance, General Account because most of the benefits will be for the O&M community. The expected benefits will:

o Allow the Corps to manage as environmental stewards the wetlands associated with operations and maintenance projects that have a potential for negative wetland impact.

o Set success criteria for wetlands restoration and development in achieving environmental goals for Federal O&M projects having a potential for wetland impact.

o Produce a system to quantitatively account for wetland loss or change in managing O&M projects in wetlands.

o Provide methods to measure and procedures to minimize cumulative impacts of several O&M projects in potentially impacted regions.

o Quantify wetlands processes, physical, biological and chemical, as related to success criteria for managing wetlands areas subject to impact from Federal O&M projects.

Mr. BEVILL. How much has the Corps of Engineers already spent on wetlands related research under previous R&D programs, including the Corps various dredging research programs.

General KELLY. The following is a list of the amounts spent on wetlands related research under previous R&D programs:

o 1973-78 $5 million in the Dredged Material Research Program.

o 1981-90 $4 million in the regulatory based Wetlands Research Program.

o 1982-87 $1 million in the Field Verification Program dealing with contaminated sediments.

Mr. BEVILL. What organizational element of the Corps will manager the Wetlands Research Program? What authority does the Corps have to create or restore wetlands?

General KELLY. The Waterways Experiment Station will manage the Wetlands Research Program. Section 150 of the Water Resources Development Act of 1976, Public Law 94-587, provides the Corps with authority to use project funds on a limited basis for wetlands restoration and creation. Executive Order 11990 directs the Corps to "take action to preserve and enhance the national and beneficial values of wetlands in carrying out its Civil Works activities". Both Section 906, WRDA '86, and the Fish and Wildlife Coordination Act require the mitigation of project induced impacts. Wetlands are likely to be impacted within the context of the water resources program, thus our ability to create and restore them as part of the water resources program is vital to compliance with these two statutes. It can be seen, however, that our authorities are widespread and cover a multitude of situations, but there is no broad unifying legislative authority to create or restore wetlands.

SAVINGS FROM REMR PROGRAM

Mr. BEVILL. The justification material states that during the final year of the original REMR program, savings in excess of $40 million were attributed to the use of REMR developed technology and that those savings are continuing. Where are those savings reflected in your budget request?

General KELLY. The benefits from the REMR Program are reflected in lower costs to maintain civil works structures and facilities for instance, $1,200,000 saved in concrete repairs to piers at Dam No. 26 on the Mississippi River and $1,000,000 saved by eliminating the need for new relief wells at the New Alton pumping station through the use of improved well cleaning methods. Without the substantial savings which have already been gained and which will continue into the future, our maintenance budget requests would be higher than they are now.

EARTHQUAKE CENTER OF EXPERTISE

Mr. BEVILL Please describe the Earthquake Center of Expertise mentioned in the National Emergency Preparedness Program justification material.

General KELLY In response to the earthquake risk within the United States, the Corps of Engineers Center of Expertise, which is located in the South Pacific Division, will serve as the Corps focal point for earthquake response and planning activities. The emphasis of the Center's programs is on: earthquake planning assistance, earthquake hazard reduction, development of training and exercise programs, and selected research and development projects. Recent experience during the Corps response to the Loma Prieta earthquake demonstrated the value of previous earthquake preparedness efforts. The Center of Expertise is essential to the Corps preparedness activities, and the Corps ability to fulfill its diverse earthquake response missions.

NATIONAL EMERGENCY PREPAREDNESS BUDGET

Mr. BEVILL For the National Emergency Preparedness Program please provide a breakdown of the budget request into broad categories of preparation for national emergencies and preparation for natural disasters.

General KELLY The National Emergency Preparedness Program is broken into two major categories of preparedness for national emergencies which threaten our nation. Funding is split equally between the two major categories, Mobilization Preparedness $4,000,000 and Continuity of Government $4,000,000. The primary focus of both categories is to ensure the Corps of Engineers capability to support the needs of this nation and its citizens in times of national emergency, whether caused by a natural event or the result of man's actions towards his fellow man. Those needs include support to civil defense, maintenance or restoration of critical infrastructure, port readiness, emergency water requirements, and ensuring the availability and responsiveness of the industrial base critical to our nation's security.

RECREATION INITIATIVES

Mr. BEVILL. Is the Recreation Partnership Initiative duplicating work being performed under the Recreation Task Force that was established last fall?

General KELLY. No Sir. The Recreation Task Force was established to develop a plan to maintain and enhance the public recreational opportunities at Corps water resource projects while reducing Federal expenditures for recreation. The Recreation Partnership Initiative was established to provide a review of Corps lands to identify opportunities for private sector development of additional public recreation facilities. Task Force proposals for encouraging private sector development on Corps lands will be pursued as part of the Partnership Initiative. We believe these two items are complimentary not duplication.

REGULATORY PROGRAM -- INCREASED FUNDING

Mr. BEVILL. Please provide a detailed explanation of how the $6.6 million increase requested for the Regulatory Program would be utilized.

ENFORCEMENT

General KELLY. Mr. Chairman, with the additional funding in Fiscal Year 1991, we can continue to increase the level of enforcement and generally maintain a program that is more consistent with the President's stated goal of protecting the wetlands. This is the first time that funds were included in our budget request to meet the wetlands goal. This increased emphasis on wetland protection was initiated in Fiscal Year 1989 when our allocation was enlarged by a late year supplemental and, as you know, we have proposed to increase our Fiscal Year 1990 allocation by reprogramming funds from the, as yet unauthorized, Bridge Administration category of work.

By the end of this fiscal year we expect to be at an enforcement level that will represent a 50 percent increase over what we had accomplished in Fiscal Year 1988 when the Government Accounting Office criticized our efforts in this area as inadequate. With the Fiscal Year 1991 request we can continue compliance monitoring of permitted projects, surveillance for unauthorized activities, and follow-up investigations of reported violations.

I should also note that we have a new agreement with the Environmental Protection Agency allowing for more efficient and effective use of enforcement resources by both agencies.

PERMIT EVALUATION

General KELLY. More than two thirds of the Corps' regulatory resources are devoted to permit evaluation. In Fiscal Year 1991 we plan to enhance our permit review efforts since this is also an important part of wetlands protection. Before a permit is issued, in fact, most proposed projects are modified to avoid environmental impacts. To better handle our permit workload and reduce review delays, we will be adding resources to those regulating offices where permit backlogs and other pressures are greatest. In addition to providing adequate funding for ordinary operational expenses such as travel to permit sites we are applying more resources to computerization as a way to track permit applications and manage the permit workload. This automation will have the long-range effect of reducing the manpower-to-permit ratio. An important initiative is increased resources to reduce delays for jurisdiction determinations. We are making over 25,000 such determinations a year now.

STUDIES

General Kelly. Mr. Chairman, in Fiscal Year 1991 we will also be conducting more studies of ecologically sensitive areas to predict permit impacts and to assess mitigation results. Local and regional wetland identification studies also require continued funding to provide ready data to be used in both permitting and enforcement.

INCREASED WORKLOAD

Mr. BEVILL Is the workload increasing in the Regulatory Program?

General KELLY. Yes, sir. We are experiencing some increases in our workload. In the last four years the numbers of applications has gone from under 14,000 annually to near 15,500 per year. In the same time period the number of reported violations has gone from 4500 to near 6500. More dramatic, has been the increase in the number of jurisdiction determinations. We handled less than 10,000 four years ago compared with 25,000 last year!

Perhaps even more important than these numbers is the growing complexity of the program and our increasing responsibilities. Regulatory jurisdiction was increased by the 1985 expansion to isolated waters. Coordination requirements with other federal agencies have expanded in recent years. We have a new administrative fine responsibility for cases of permit non-compliance. Emphasis on wetlands and mitigation creates pressures on our staffs to make ecologically sound decisions. Public input has grown; consultants are now routinely hired to write reports and data that our staffs must evaluate. As the more easily permitted sites are developed, builders are moving into more environmentally sensitive areas. There are few simple applications since most smaller projects are now processed through our regional and nationwide permits. There are always applications for very controversial projects which can consume enormous amounts of a district office's budget. Finally, with such emphasis on wetlands, now more than ever, we must cope with applicants who resent, even defy, interference in the utilization of their own property.

FUNDING REQUESTS FOR THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS AND THE WATER RESOURCES SUPPORT CENTER

Mr. BEVILL. Last year you requested $3.7 million for the Water Resources Support Center. Why is the FY 1991 request $3 million larger? Why is the request for the Board of Engineers for Rivers and Harbors so much less than the FY 1990 request?

General KELLY. In July 1989, the planning and policy review functions of HQUSACE and the Board of Engineers for Rivers and Harbors (BERH) were consolidated into the Washington Level Review Center (WLRC) and placed under the purview of the Water Resources Support Center (WRSC). The BERH was reduced from a staffing level of 42 to a staff of four advisors who conduct independent reviews of reports as requested by Acts of Congress or resolution of Congressional Committees, or by the Chief of Engineers. The WLRC became the center for Washington level review of all proposed water resources developments and provides review results and administrative support to the BERH staff of advisors. Thirty-six positions were transferred from BERH to WRSC for establishment of the WLRC, for a net savings of two positions. FY 1989 and 1990 funding adjustments and FY 1991 budget submissions reflect this restructuring.

DISTRICT OFFICE BUILDING REPLACEMENTS

Mr. BEVILL. Please provide the Committee with a status report on the district office building replacements for the Walla Walla District and Galveston District.

General KELLY. The concept report for the new Walla Walla District office facility is being completed by the District prior to review by the North Pacific Division and Corps Headquarters. Once the concept report is approved, it will require approximately three years and $12 million to prepare design and to initiate and complete construction. The design for the new Galveston District office facility is essentially complete; however, we have not yet programmed the $12 million required for construction.

WES SUPERCOMPUTER

Mr. BEVILL. Will the new super computer at WES have an impact on your continuing evaluation of Corps of Engineers' data processing needs?

General KELLY. Yes, the Department of Army supercomputer, a CRAY Y-MP 8/6128 system, which is sited at the Waterways Experiment Station in Vicksburg, MS does impact our evaluation of Corps computer processing needs. The impact, however, is primarily on Corps research and development, and engineering design processing requirements rather than on our management information systems. The CRAY Y-MP is used to perform highly complex, multidimensional numerical modeling which cannot be run on hardware which is not in the supercomputer class. This system has no impact on existing Corps management information systems or on the probable successor systems since the applications utilizing the CRAY Y-MP system cannot be run on these systems. Conversely, the transaction intensive applications which are run on management information system hardware cannot effectively utilize the specialized computational architecture of a supercomputer like the CRAY Y-MP system.

CEAP PILOT TEST

Mr. BEVILL. When will the CEAP Pilot Test be complete?

General KELLY. The Corps expects to complete the CEAP pilot test in July 1990, and, based upon pilot test results, the Assistant Secretary will advise the Subcommittee of the Army's planned disposition of Conference Report language accompanying Public Law 101-101 which addresses future funding for CEAP acquisitions beyond the pilot test.

Mr. **Bevill**. The Chair recognizes Mrs. Smith.

Mrs. **Smith**. Thank you very much, Mr. Chairman.

Welcome back, General Kelly. Welcome to all of you.

DROUGHT PROBLEMS

First, I want to tell you how much I appreciated your comments about what you can do and are doing and will do in connection with drought problems.

Colonel Witherspoon discussed this when he was here as did Mr. Page. They pointed out it would take six years of normal rainfall to refill the main stem reservoirs on the Missouri River.

Of course, that is of tremendous concern out in our area.

PLATTE RIVER STREAMBANK EROSION DEMONSTRATION PROJECT

With respect to the Platte River Streambank Erosion Demonstration project, which I understand will cost about $4 million, can this project be considered under your continuing authorities funding for this amount or do you have to add the money in specifically?

General **Kelly**. Let me just check with Don.

Yes, it does need to be added, Mrs. Smith.

Mrs. **Smith**. I see. How much is the Federal share of this?

Mr. **Cluff**. The Federal share is $3 million.

Mrs. **Smith**. Then, the nonfederal share, would it have to be all in cash or could it be in land or in some other method of support?

Mr. **Cluff**. If land is required for the project, then the acquisition of land would be part of the cost share.

Mrs. **Smith**. It would be part of it? Then what is the Corp's capability in 1991 for constructing this project?

Mr. **Cluff**. We will have to provide the capability for the record, Mrs. Smith.

[The information follows:]

Administration review of the Platte River Streambank Erosion Demonstration Project has identified economic and policy concerns, determined that accomplishment of this project is not in accord with current administration priorities, and that no generic Federal responsibility for single purpose streambank erosion control has been established in legislation. Therefore no Fiscal Year 1991 capability has been established. If Congress provides funds and direction to proceed with the project, we could utilize $750,000 in Fiscal Year 1991.

PLATTE RIVER CONSTRUCTION AND FUNDING SCHEDULE

Mrs. **Smith**. Fine. For the record, would you also provide the construction and funding schedule for the project?

Mr. **Cluff**. We will be glad to.

[The information follows:]

Existing authorization is Section 603(a) of the Water Resources Development Act of 1986 which requires 25% cost sharing and that the proposed improvements be economically justified. Approximately one-fifth of the 60 sites identified in the decision document are economically justified and negotiation of a Local Cooperation Agreement has not been initiated. If Congress should decide to appropriate funds and mandate the construction of this project, the funding and construction schedule is as follows:

PLATTE RIVER STREAMBANK EROSION DEMONSTRATION PROJECT

	Fiscal year—			Total
	1991	1992	1993	
Federal	750,000	1,500,000	750,000	3,000,000
Non-Federal	250,000	500,000	250,000	1,000,000
Total	1,000,000	2,000,000	1,000,000	4,000,000

STEELE CITY, NEBRASKA

Mrs. **Smith**. My next question is really on behalf of Mr. Bereuter. It is a small project but a very important one.

In Steele City, Nebraska, there is a great need for work on a sewage lagoon and a big pollution problem is threatening.

Steele City has 176 people. Their share of the project is $14,500 which they haven't got.

Is there any flexibility in a case like this where the Federal Government could supply more of the money?

General **Kelly**. Is this one of the municipal plants being constructed under EPA's authority in which we are assisting them? I am not familiar with this project.

My staff has advised me that is probably a section 14 protection.

Mrs. **Smith**. I know it is a sewage lagoon. I don't know the details either.

General **Kelly**. I would have to find out and provide it for the record.

Mrs. **Smith**. I would appreciate that.

[The information follows:]

The Kansas City District of the Missouri River Division initiated a study of the streambank erosion problem on the Little Blue River at the sewage lagoons of Steele City, Nebraska, in May, 1988. The study was terminated in August, 1989, when the local sponsor would not provide the necessary assurances for cost sharing in the construction of a project under Section 14 of the 1946 Flood Control Act, as amended. The problem area is of such extent that the scope of the project can not be reduced. Steele City does not qualify for a reduction in cost sharing under the ability to pay analysis as Jefferson County, Nebraska, does not qualify for such a reduction pursuant to the guidelines which implement Section 103(m) of the Water Resources Development Act of 1986 (Public Law 99-662). Should the community locate a source of funds for cost sharing, the Corps could reopen the project investigation.

Mrs. **Smith**. I have no more questions Mr. Chairman.

WORK IN CALIFORNIA

Mr. **Bevill**. The Chair recognizes Mr. Fazio.

Mr. **Fazio**. Thank you, Mr. Chairman.

I am constantly reminded of how much the people of Nebraska are going to miss Mrs. Smith.

I want to thank you, General Kelly, for all the good work you have done in recent years in California and tell you I think your directorate is performing at a high level of efficiency. I think you all deserve the pay raise you are going to get in January.

General **Kelly**. Thank you, sir. I know all the civilians will appreciate that.

FEDERAL INFRASTRUCTURE STRATEGY

Mr. **Fazio**. We hope there is a trickle down effect to the military.

I really want to talk to you briefly about this Federal infrastructure strategy. I guess I am a little impatient. We all know we have a deteriorating infrastructure from the ports to the highways to airports to waste disposal.

Why will it take you three years to finish a document like this? Maybe I am underestimating what this strategy is supposed to provide us at the end of this three-year period.

Could you tell us what we are going to get in the report that the Congress and the President will receive at the end of Fiscal Year 1993? I must tell you I am a little impatient and want you to know that the time that is going to pass—which I tend to believe is a little excessive—is time we could be doing something rather than documenting things.

General **Kelly**. You asked a very correct question.

Congress authorized a National Council on Public Works Improvement, as I mentioned in my testimony, which was authorized in one of the acts in 1984. That council had representatives from, at that time the Reagan Administration, the Senate, and the House. They put together a very interesting book called Fragile Foundations which listed the infrastructure problems.

Like a school report card, they graded eight different categories, some of which you mentioned like airports and highways. The best grade, I might point out, was our water resource projects, we had a B plus. The worst was hazardous waste which was graded at a D. The overall was about a C.

They estimated that we are spending between Federal, state, and local probably about $45 to $50 billion a year and that that is okay to maintain adequately; but when you are talking about promoting economic development by the turn of the century, you probably need to double that to something like $90 to $100 billion.

Mr. **Fazio**. Again, that is from state and local as well as Federal sources?

General **Kelly**. A combination, yes, sir.

FEDERAL INFRASTRUCTURE ADVISORY BOARD

Right now each of the agencies probably are independently looking at their own areas; but there is no integrated structure. So what we proposed to do a year ago, and submitted as part of the 1991 budget, was for the Corps of Engineer's to be a catalyst and to at least begin to get the agencies together to address the problems delineated in the report, to come up with an infrastructure strategy, and to lay out some alternatives by which you could look at funding from the Federal side, the state and local, and also private industry.

That is what we are going to be looking at. The first year, 1991, will be devoted to setting up a Federal Infrastructure Advisory Board which is composed of the nine Federal agencies and to start laying out the strategy which we hope to have at the end of three years.

Right now, we are starting from scratch.

Mr. **Fazio**. Without much scratch, too?

General **Kelly**. Yes, sir.

Mr. **Fazio**. That is our basic problem. We really all understand it will cost money whether we lean more on local taxpayers who have paid for the last 10 years a good deal more in local and state taxes to make up for the reduction in Federal programs, or whether we lean on the private sector which never enjoys that process, or whether we lean on national taxpayers, which we all seem to be unwilling to do.

I don't see us doing much but shuffling the cards. We know it is going to cost money. The sooner we can begin to document what these costs are going to be and how they ought to be apportioned, I think we may be at the point where we will to be able to say we are making progress.

I see the Secretary of Transportation is going to come out with a proposal. How does that integrate with what you are doing? I may not be impressed with what he has to say but I understand he is going to tell us what every level of government will be required to do if we are to have a hope of making up for our transportation shortfall.

How does that fit in with what you are doing?

General **Kelly**. It will fit in nicely depending upon the outcome, of course. He is addressing just transportation, highways, air, and rail. That is just one subset of the whole infrastructure area.

But that will dovetail nicely, because, although it is just one part, it is probably the majority part. So, at least he has done work on it whereas other agencies haven't done any. That will probably give us a little bit of a head start as we address pulling this whole thing together.

FISCAL YEAR 1991 ACTIVITIES

Mr. **Fazio**. What is the Corp's going to be spending money on in Fiscal Year 1991? What specifically are you going to be spending and for what?

General **Kelly**. Mainly coordination and getting the agencies together, the nine agencies together.

Mr. **Fazio**. Are you picking up the overall cost of this? Is that coming out of your budget, the coordination of the nine agencies?

General **Kelly**. Yes sir, it is.

Mr. **Fazio**. How much will that cost?

General **Kelly**. We are probably talking about totals for the three years, $3.35 million and this year's effort will be about $350,000.

Mr. **Fazio**. I hope you will keep the committee apprised of the progress you are making here. I think we are getting off to a late start regardless of who is at fault.

The evidence is clear that the systems we have in place are deteriorating, in most cases, faster than we can repair them. We have a gas tax proposal on the ballot in California this year and if it fails to pass, and it is very close at the moment, it will mean we are not even going to be able to maintain and repair our existing highway system let alone augument it in any way.

The public has been convinced somehow that the system is rampant with waste and abuse. Either that or they are antigrowth and simply don't want to invest in things that they think will produce more development.

I am very concerned about this. I hope we can quickly transform coordination into action.

General **Kelly**. I am sure you are aware that David Aschauer from the Federal Reserve Bank in Chicago did an interesting study two years ago showing that infrastructure is directly related to productivity and economic growth. It is almost a one on one match. A very, very interesting study.

Mr. **Fazio**. Would you put a synopsis of that in the record for us?

General **Kelly**. Yes, sir.

[The information follows:]

SYNOPSIS OF DAVID ASCHAUER PAPER

"THE MACROECONOMIC IMPORTANCE OF PUBLIC CAPITAL"

There is a strong correlation between public investment in infrastructure and a Nation's productivity. Strong and robust empirical evidence exists to substantiate the claim that government spending priorities away from public investments and into entitlements has resulted in an erosion of productivity growth. Quantitatively, as much as 60 percent of the productivity slump in the United States can be attributed to neglect of our core infrastructure. Countries which sustain a high level of public investment in infrastructure relative to output appear to experience higher productivity growth than countries that do not invest in infrastructure. This is demonstrated in the attached chart.

A root cause of the decline in the competitive position of the United States in the international economy may be found in the low rate at which our country has chosen to add to its stock of highways, port facilities, airports, and other facilities which aid in the production and distribution of goods and services.

Public capital has complimented private investment. Instead of simply substituting for private investment, public investment has added to the total capital stock and made private capital more productive.

NOTES:

1. David Aschauer is Senior Economist with the Federal Reserve Bank in Chicago.

2. The above synopsis is from Aschauer's November 17, 1989 paper "The Macroeconomic Importance of Public Capital". An earlier article written by Aschauer "Rx for Productivity" appeared in the September 1988 edition of the Chicago Fed Letter. In this earlier publication, Aschauer charted a tight relationship between public non-military capital and total factor productivity.

3. A perspective on the limitations of applying Aschauer's work to public policy is found in the November 17, 1989 paper "Lessons from the Past, Opportunities for the Future: The Changing Role of Public Investment in Economic Growth" by W. David Montgomery of the Congressional Budget Office.

MAGNETIC LEVITATION

Mr. **Fazio**. I would like to follow up on the Chairman's questions on the magnetic levitation systems.

The Germans, picking up on our technology of the 1960s spent a billion dollars over 20 years to develop this rapid MAGLEV system which is what I understand they will be using in Florida and in the Anaheim to Las Vegas train you are also aware of, I assume.

Are you working with both of these projects in any way?

General **Kelly**. In this particular case, in Fiscal Year 1991, where what system we eventually will come up with, a high speed transportation such as MAGLEV will involve primarily financing by the private sector. They are using the first state of the art, what we have right now. We do not have, as I told Chairman Bevill, anything right now in the United States to handle it.

The real market for magnetic levitation is in the United States. Japan has invested in high speed rail as have the Europeans. We haven't as yet. We still have essentially 19th Century technology for the United States. The real market is here.

Although those are first ventures, California to Las Vegas and Disney Land connecting to the airport, there is a tremendous market in that 500 to 600 mile range. That is where we are zeroing in on. We have established a very dynamic partnership with the Federal Railroad Administration.

We will be sponsoring a workshop this coming spring in the April–May timeframe here in Washington where we will ask the private sector to come in and listen to their ideas.

What we are looking to be is a catalyst to get this whole thing going so it is a U.S. system eventually and not a European system.

FISCAL YEAR 1991 FUNDS

Mr. **Fazio**. I am totally supportive of what you are attempting to do. However, I guess I am not too impressed when I see the Germans have spent a billion dollars over 20 years and we are starting out with $3.5 million in your budget.

What do we hope to leverage from the other Federal agencies and from the private sector in the next fiscal year?

General **Kelly**. In this particular case, in Fiscal Year 1991, where we have $3.5 million, the Federal Railroad Administration is putting up a little over $6 million in their effort as well. I might point out, DOE probably has a million dollars. So we have about $10 million.

What we would like to do is leverage with the private sector to get it going.

Mr. **Fazio**. What indications do you have of interest?

General **Kelly**. Tremendous interest, sir. Tremendous interest.

Mr. **Fazio**. What types of industries are interested?

General **Kelly**. Mainly the aerospace industry.

Mr. **Fazio**. Are they looking for new work?

General **Kelly**. They see the Department of Defense budget going down in the aerospace industry. This is very technical and would use the same scientific and engineering disciplines you see in the aerospace industry today.

Mr. **Fazio**. Let me just tell you that I hope that the Department of Energy's involvement means we are beginning to look at superconducting magnets as possibly part of that second generation technology. Is that what their involvement is?

General **Kelly**. That is correct. That is where you get your maximum efficiencies.

CLIMATE CHANGE

Mr. **Fazio**. Let me just ask one more question, about climate change. I asked General Hatch about it the other day. I wonder if you could tell us what you really hope to do with the Corp's research and development budget this year relating to global warming?

General **Kelly**. Yes sir, I can.

Mr. **Fazio**. You do not have a lot of money. I remember it was $500,000.

General **Kelly**. It is a three-year effort which is somewhere in the vicinity, I believe, of about $4.5 million. This will be the first full year with two more years of further study in this area.

The application, as General Hatch told you, was primarily along our coastal areas where we have so many projects. The question is are we putting in the correct design factors if, in fact, we do have global warming. We really have not done a lot of work on that. In fact, as you know, that whole area is in its embryonic stage.

A lot of people don't fully understand whether we have a problem or not. We will be looking at our predictive models to verify, based on history, which way the situation is heading. Then we will look at what things we need to do in both our study and our engineering and construction program.

Mr. **Fazio**. I hope you will keep us apprised of the case studies you attempt to evaluate and tell us how you are going to geographically distribute those on the various coasts of the country. I am sure they would be of interest everywhere.

I know my friend, Mr. Thomas, has questions on wetlands. He is an expert in that area. I have other questions you can answer for the record.

[The information follows:]

INFRASTRUCTURE

Mr. FAZIO. Your prepared testimony indicates that development of a Federal infrastructure strategy will be a 3 year effort. So, you will report to the President and the Congress at the end of FY 1993 on the results of your efforts and on your recommendations for a Federal infrastructure strategy. Is that correct?

General KELLY. Yes, you are correct that the development of the Federal strategy will be a 3 year effort. We will complete our work by the end of FY 1993 and then transmit the report with our recommendations to the Congress and the President.

Mr. FAZIO. Are you concerned that this strategy is not aggressive enough? The deterioration of the nation's infrastructure from ports, to roads and interstates, to airports and waste disposal facilities, is a critical problem. The Department of Energy will take 18 months to develop a National Energy Plan, an equally complex and important effort. If the Department of Energy doesn't need 3 years to develop a National Energy Plan, why should this Committee go along with a proposal that won't yield a Federal infrastructure strategy for three years?

General KELLY. I agree that the deterioration of the Nation's infrastructure is a very serious problem. And it is the complexity of the problem that will require 3 years to develop an infrastructure strategy. As you point out, the infrastructure is made up of many diverse modes, including water resources, water supply, wastewater treatment, highways, bridges, aviation, mass transit, intermodal transportation, solid waste disposal, hazardous and toxic waste disposal, energy, and public facilities. The result is a slate of many diverse issues and complex problems that must be very carefully addressed. And there are many public as well as private sector decision makers and managers of infrastructure who must be involved in the development of this strategy. The Infrastructure Advisory Board which we propose through this initiative would be composed of at least ten Federal agencies, alone. As such, an enormous amount of coordination and dialogue will be required to reach consensus as to the shape of the Federal infrastructure policy and strategy for carrying out this policy. I do not believe that 3 years is an inordinate amount of time to carry out the monumental task that we have before us.

Mr. FAZIO. General Kelly, were you involved in developing the schedule for this initiative? [If no, was the Corps or was the Corps schedule imposed on the Corps]

General KELLY. Yes, I worked closely with my staff in developing this schedule, and I believe it is a very realistic and achievable schedule.

Mr. FAZIO. Did you (or the Corps) recommend that the Corps take three years to develop a Federal infrastructure strategy?

General KELLY. The three year recommendation was developed by the Corps staff and was concurred in by myself and staff of the Assistant Secretary of the Army for Civil Works.

Mr. FAZIO. What kind of resources would the Corps need in FY 91 and FY 92 to complete this effort within 18 months?

General Kelly. We believe the three year schedule is achievable and realistic. I would have great concern about the quality of the strategy, dealing with such a complex and diverse subject requiring collaboration with so many, if it were produced in an 18 month period. The Committee may wish to consider requiring a report mid-way through the three year schedule to include status of the effort and any recommendations which are appropriate at that point in time.

MAGNETIC LEVITATION TRANSPORTATION PILOT PROGRAM

Mr. FAZIO. The justification material you have presented to this Committee indicates that the Federal costs of the MAGLEV program beyond FY 1991 cannot be provided until a cost-sharing arrangement with the private sector is defined. Can you give the Committee as estimate at this time of the total cost of the program and over how many years it is likely to span?

General KELLY. A very approximate estimate of the total cost of designing and building a demonstration project is $1 billion, with a duration of seven to nine years. This estimate is derived from the June 1989 Executive Report of the MagLev Technology Advisory Committee. The Federal share of these costs cannot be determined until the appropriate public and private sector roles have been defined. Our goal is to minimize Federal involvement in the later phases of the program. An improved estimate will be available in the draft program implementation plan, which the Corps is preparing this fiscal year. After the concept design work and the variety of technical and market assessments that will be conducted in FY91 and FY92, we will be able to make a more accurate estimate not only of total program costs, but of the viability of the program and its attractiveness to the private sector. In the same time frame, we will be able to determine the appropriate shares of the Federal Government and U.S. industry in the program costs.

Mr. FAZIO. The budget justification also indicates that in FY 1990, you are preparing a detailed "implementation plan" for the program which will clearly identify the costs and timespan of the program. When will this "implementation plan" be completed?

General KELLY. The draft implementation plan is scheduled for completion in May 1990. We are coordinating our effort with the preliminary feasibility assessment that the Federal Railroad Administration is preparing for submission to Congress in the same time frame.

Mr. FAZIO. Have any potential private sector partners expressed interests in the project or been identified, and if so, please describe them?

General KELLY. A number of different U.S. industries have expressed interest in the MAGLEV program. These include the aerospace companies that may become involved in vehicle design and manufacturing; large engineering and construction companies that could handle the design and construction of the guideways and support infrastructure; and various electronics firms that could provide the levitation, propulsion and guidance systems. There are also several industry coalitions that have been formed recently which are actively supporting development of a U.S. MAGLEV technology. We have been coordinating with these private sector interests and are sponsoring, in cooperation with the Department of Transportation and the Department of Energy, a joint government-industry forum this Spring to exchange ideas on the technical and market potential for an advanced MAGLEV system.

Mr. FAZIO. There are at least two MAGLEV systems which are scheduled for construction in 1990s -- one in Florida, a 17 mile system, and one between Anaheim and Las Vegas. Both will use the West German Transrapid MAGLEV Vehicle/System. American firms in both instances are working with the West Germans to put these systems in place

The West Germans spent more than $1 billion over 20 years to develop the Transrapid MAGLEV system. It does not use superconducting magnets, though when the technology is available it could be retrofitted to accommodate that change. And, the Transrapid has a cruising speed of 310 miles per hour, while creating only negligible electro-magnetic fields in the passenger compartment.

Now, what kind of improvements are you expecting to make in the existing technology, and to have any hope of success in any reasonable time frame -- say by the end of the decade -- isn't the Corps going to have to spend a lot more than $3.5 million a year to develop a competitive MAGLEV system?

General KELLY. The West German Transrapid is admittedly well-refined and nearly ready for commercial implementation. However, to achieve that level of refinement, they have selected what is essentially a 1970's design. Potential drawbacks of this design include a heavy vehicle, which translates to an expensive supporting guideway, and a small gap of only three-eights of an inch between the vehicle and guideway, which may be difficult and costly to maintain in day-to-day commercial operations. Further, this design is optimized for the European market. This in no way suggests that the U.S. localities that have selected the Transrapid system, including Orlando, Pittsburgh and possibly Southern California to Las Vegas, have made an incorrect choice of technology. Clearly, the Transrapid is the best and only MAGLEV system that will be ready for commercial applications in the 1990's. However, we believe that it is possible to develop a U.S. design that would utilize the strengths of U.S. industry in superconductivity, composite materials and modular construction. Such an advanced U.S. MAGLEV system should be able to outperform the existing foreign technologies, or to match their performance at a lower cost.

We recognize that a concerted effort will be required to develop an advanced U.S. MAGLEV system, particularly in view of the time and resources committed by West Germany and Japan. The purpose of the $3.5 million requested by the Corps for FY 1991, coupled with the $6.2 million requested by the Federal Railroad Administration, is to realistically assess the potential to leapfrog the foreign technologies, and to determine what resources would be required from the public and private sectors to achieve that goal.

Mr. FAZIO. Isn't this just another instance where the Administration, lacking the funds to put together and finance a significant effort, has settled for symbolic, hollow program? If we were serious about developing a competitive, second-generation U.S. MAGLEV system by the end of the decade, wouldn't we want to have a more robust program than you have presented to the Committee this morning?

General KELLY. Certainly a significant effort will be necessary to develop a second-generation U.S. MAGLEV system. For such a system to be successful, the U.S. private industry, the ones who would design, build and operate these systems, must be partners in the entire development process. If we can demonstrate to the U.S. private sector that a large potential market exists for MAGLEV transportation systems, then we can reasonably expect industry to share in the costs of developing a technology that can successfully compete in that market. We are hoping to leverage our scarce Federal resources with a significant contribution from the private sector during the next several fiscal years, with the private share increasing and the Federal share decreasing as the project moves toward a commercial product.

Mr. FAZIO. Your prepared remarks indicate that the Corps intends to continue work on "health/safety assessments." Please describe this work.

General KELLY. The health and safety effects of magnetic fields is one area of concern that clearly requires more work before MAGLEV is implemented in the U.S. This is necessary both to provide the necessary safety certification of systems planned for implementation in the 1990's, and to design a safe second-generation system for use in the next century. We have already begun discussions with the Environmental Protection Agency on defining the effects of the magnetic fields associated with MAGLEV systems. We anticipate that EPA will begin this work later this fiscal year by measuring the electro-magnetic fields in existing transportation systems to establish a baseline for comparison. In FY 1991, this work will continue, possibly involving other agencies such as the Public Health Service. The eventual goal is to establish Federal guidelines for safe exposure to magnetic fields.

CLIMATE CHANGE IMPACT PROGRAM

Mr. FAZIO. Will the Corps role in the Government's Climate Change Impact Program be limited to the study of the impacts of climate change on design, construction and operation of Corps of Engineers projects?

General KELLY. The Corps will focus on the effects of potential climate change on the water resources and engineering activities in the major mission areas of the Corps. We are seeking to improve the basis for the planning and design of new projects and operations and management of existing projects, given the uncertainty of future demand variability.

Mr. FAZIO. Your budget justification indicates that the Corps will initiate case studies to "examine the performance sensitivity of existing projects to climate change variability." How many case studies do you expect to complete? Will they be geographically distributed? Please provide the results of these cases studies to each Member of the Committee, when they are completed.

General KELLY. We intend to conduct about 8 to 10 case studies to identify the physical and economic consequences of significant changes in the water regime. These studies will be done at various locations in order to capture the full range of project features and climate variations across the nation.

WETLANDS RESEARCH PROGRAM

Mr. FAZIO. Your prepared remarks indicate that the Corps plans to include "field demonstrations" as part of its Wetlands Research Program, which you have indicated is being put on a fast-track for completion in three years. What will be the scope of the field demonstrations and when will they be done?

General KELLY. The term "field demonstration" includes all field work pursued during the Wetlands Research Program. This will include investigatory projects, such as determining how wetlands differ in their function and value on a regional basis, as well as projects to demonstrate proven techniques. Field demonstrations will be accomplished in all research and development task areas. Projects will be conducted in all areas of the U.S. and all field demonstration work identified will be concluded in the three-year period of the program.

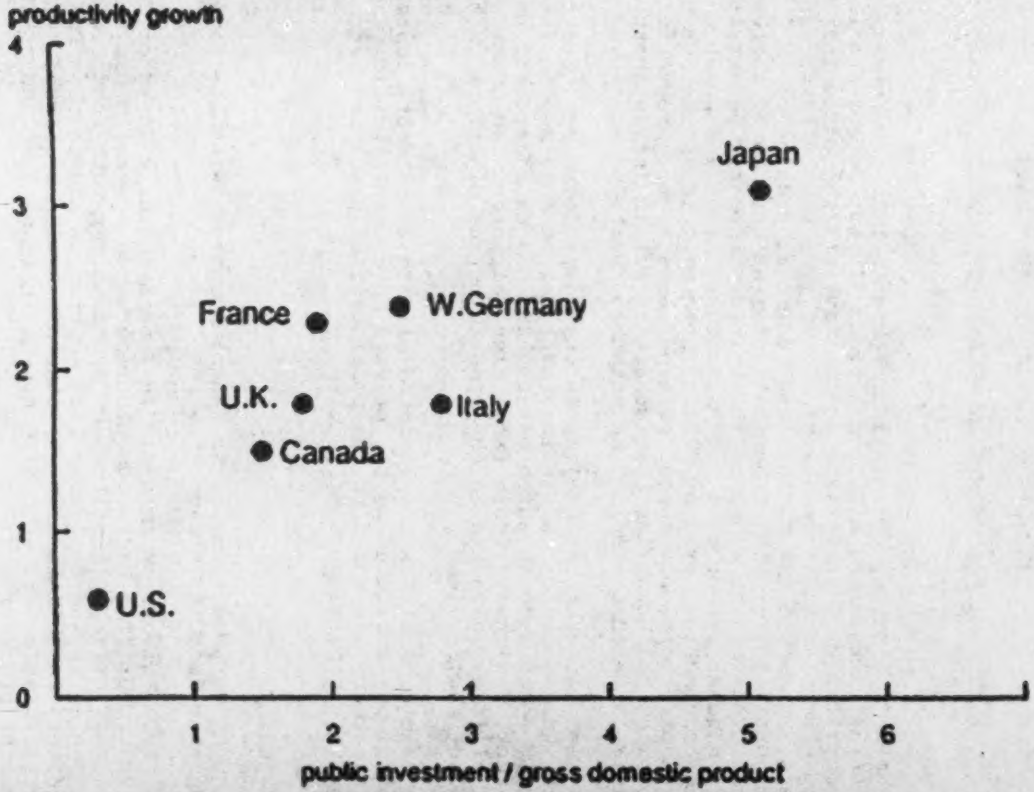
Mr. FAZIO. What portion of the $22 million total cost for the Wetlands Research Program will go to fund the "field demonstrations"?

General KELLY. Sixty to seventy percent of the $22 million total cost, or $13 to $15 million, will be spent on field demonstration work.

Mr. FAZIO. How will the various field demonstration projects be selected?

General KELLY. Because of the short 3-year term of the Wetlands Research Program, most of the field demonstration work will have to be accomplished in areas having some on-going relevant activity that can be modified to meet program goals or ones that have had much of the up front work, such as coordination, access and baseline data, already accomplished. The R&D task area managers will identify, through both formal and informal requests to Corps Districts and other Federal and state agencies, areas where opportunities exist. Once the projects are identified they will be prioritized by several factors, including the potential to solve a specific problem, how much interagency coordination has been accomplished, and what additional benefits the project will have, like including a restoration project in the North American Waterfowl Plan. Next to solving a particular problem, interagency cooperation and coordination will have the greatest influence on which projects will be accomplished.

Public investment and productivity



AQUATIC PLANT CONTROL

Mr. **Fazio**. I would like to ask you one quick question on the aquatic plant control program that is included in this portion of the budget. Are you aware of any problems in California that General Sobke may have told you about?

General **Kelly**. I have not talked to General Sobke lately about that. I know Chairman Bevill is very familiar with this. We are starting for the first time in the last couple of years to see that hyacinth, waterfoil, and all of those pesty plants are now beginning to accumulate in some of the lakes in California.

Mr. **Fazio**. That is what I thought. I noticed your budget was fairly heavily oriented to the Southeast.

I wanted to sensitize you to some of the other regions that are beginning to suffer similar problems.

General **Kelly**. Yes, sir.

Mr. **Fazio**. Thank you.

Thank you, Mr. Chairman.

INFRASTRUCTURE STRATEGY

Mr. **Bevill**. The Chair recognizes Mr. Pursell.

Mr. **Pursell**. I am interested in the same issues Mr. Fazio was asking about with respect to the infrastructure. How many people are involved in this project now within your operation?

General **Kelly**. I have within the Civil Works Directorate in Washington two full time people just monitoring this whole area of infrastructure. Then we have, of course, our Institute of Water Resources, which is kind of like our directorate of water resources think tank, located out at Fort Belvoir, to initiate and help us put together this whole program.

Mr. **Pursell**. Are they working on it full-time?

General **Kelly**. Yes, sir, they are.

Mr. **Pursell**. How many are involved?

General **Kelly**. I would suggest they may be putting three or four on it. Some of it will also be under contract, that which they cannot do themselves. It will be a substantial effort.

Mr. **Pursell**. I think the whole committee is looking for a time table on this. I am not clear what that time table is in terms of the infrastructure strategy and building an advisory panel. Is there a formal agreement that you are the lead agency in this infrastructure strategy?

General **Kelly**. No, sir. That is one of the things that hasn't been spelled out.

We recognized there was a vacuum, a real need.

INFRASTRUCTURE AUTHORITY

Mr. **Pursell**. What would that take, a resolution from Congress?

General **Kelly**. We will need your assistance. At the present time, we only have authority to at least begin the coordination aspects.

Mr. **Pursell**. Did you do that as a voluntary action to try to get it moving and initiate it?

General **Kelly**. Yes, sir.

Mr. **Pursell**. I compliment you. But there is still no formal agreement?

General **Kelly**. No, sir. But probably beginning in 1992 as we enter our second phase where we are getting into fairly specific things regarding infrastructure, detailed coordination with the other agencies, we probably will need some authority from Congress to do that and would consider your assistance as well as the authorizing committee.

Mr. **Pursell**. When do you expect that?

General **Kelly**. What we are doing, sir, is right now, our Water Resources Development Act of 1990 is being put together to be submitted to Congress. That is our authorization, two-year authorization.

That will be submitted, hopefully, within the next month or so. That will hopefully be one of the items supported by OMB. We have proposed it to OMB.

CORPS COMPARED TO OTHER AGENCIES

Mr. **Pursell**. How many agencies are involved? Nine, did you say?

General **Kelly**. Nine, yes sir.

Mr. **Pursell**. How does the Corps' infrastructure of locks, dams, and other projects rate compared with other parts of the infrastructure?

General **Kelly**. We have deficiencies, especially clearly in your area in the Upper Midwest. But overall, as I said we were graded a B plus.

Mr. **Pursell**. With respect to highways how are we doing?

General **Kelly**. The Water Resources program is in better shape than highways, solid wastes, and hazardous and toxic wastes.

Mr. **Pursell**. Better shape in that we have more problems?

General **Kelly**. Better shape in that we have addressed some long-term plans of correction as compared to other areas.

MODERNIZATION AND REHABILITATION PROGRAM

Mr. **Pursell**. In terms of a strategy for working out modernization and rehabilitation programs, are you ahead of some of the others?

General **Kelly**. Yes, we are working on an Inland Waterway Investment Strategy right now. We have been working on it for some time and it will probably bear fruition by the end of this year. It takes all of our locks and dams everywhere and lays them all out and looks at their future use for the next 50 years, determines the benefits of rehabilitating or rebuilding them. There is an economic crossover point between rehabilitation and rebuilding.

We are about ready to complete that study. So, I think we have a pretty good jump on what we need to do.

Mr. **Pursell**. Has the committee been made aware of that?

General **Kelly**. Yes, sir. We will be submitting that report to the committee this year.

OTHER AGENCY INVOLVEMENT

Mr. **Pursell**. Let's take the Corps out of it for a minute. Where are the other eight agencies in terms of funding the coordinated project at this time?

General Kelly. The Department of Transportation portion, under Secretary Skinner, since he arrived about a year ago, has received a lot of his personal energy and a lot of emphasis on laying out a national transportation strategy. Dr. Tom Larson from FHWA has been working diligently on that. That is what Congressman Fazio was talking about.

I think that report is to be coming out momentarily.

Mr. Pursell. Secretary Watkins at Energy is doing a national energy policy.

General Kelly. We are part of that because of our hydropower interests.

Mr. Fazio. The energy study is only going to take half as much time, I might add.

LEAD AGENCY

Mr. Pursell. If you were voting today, who would you recommend to be the lead agency? How soon can we move on that? It sounds like we have nine Indians and no chief.

General Kelly. I wouldn't say we should be the lead. I would say we should have a very significant role. That is one of the things we are going to address in our first year of that effort, is to lay out a pecking order, if you will, as to who has what responsibilities by agency.

Mr. Pursell. Has that been thoroughly discussed with the other eight agencies?

GETTING STARTED

General Kelly. We are just getting off the ground. That is what Congressman Fazio is trying to remind us of. We need to get together a little faster.

Mr. Pursell. From a planning standpoint, dollar standpoint, personnel standpoint, and timetable standpoint. All the ABCs of a good old military objective.

General Kelly. Absolutely.

Mr. Pursell. That should be the first order of business. It seems like we have lost of lot of time on this. I share Mr. Fazio's concern.

General Kelly. President Bush is looking at this as an important activity. That is why we saw in his first year's budget, in Fiscal Years 1990-1991, some monies allocated to at least get a start.

OTHER PLANNING AGENCIES

Mr. Pursell. Aren't there existing planning agencies in the various counties, States, and regions that have responsibilities in this area, and so it is a matter of getting all these groups together? A lot of this is already done isn't it?

General Kelly. Yes, it is.

Mr. Pursell. You don't have to reinvent the wheel?

General Kelly. No, sir.

Mr. Pursell. I know that in southeasten Michigan, where we have 5 million people, a planning agency called the Southeastern Michigan Council of Governments does this. It is authorized to do it under Federal law and is getting Federal dollars to do it.

I think we ought to utilize existing planning advisory agencies, both governmental and voluntary, to bring this together. I think that would expedite the timetable.

General **Kelly**. That input is absolutely crucial.

STUDY SCHEDULE

Mr. **Pursell**. When will the final study be complete?

General **Kelly**. It is a three-year study. We will be finalizing it in fiscal year 1993.

Mr. **Pursell**. You think you can meet that target?

General **Kelly**. Yes, sir. The real issue that it will come down to is, how do you distribute the costs between Federal, State, local, and private interests? That is going to be the tough issue.

Mr. **Pursell**. It is not so much collecting the data and computerizing it?

General **Kelly**. We have most of that. The issue will be what is the strategy to address the problem.

Mr. **Pursell**. Providing the strategy for the long term, that will be where the heat is.

I just wanted to share my concern. Hopefully, this will be a high priority here with us as a committee.

Thank you, Mr. Chairman.

CHATTAHOOCHEE—COOSA RIVER BASINS

Mr. **Bevill**. The Chair recognizes Mr. Thomas.

Mr. **Thomas**. Thank you, Mr. Chairman. I want to thank my good friend and colleague Mr. Frazio for recognizing my expertise in the area of wetlands as he did a moment ago.

Before I get to that, Mr. Chairman, I have a few comments I wanted to make to you. I wanted to thank you for your effort and the briefing that was held for us the other day and the work on the reallocation study on the Apalachicola, Chattahoochee, Flint and Alabama—Coosa River Basins.

I grew up in the south at a time when we had the impression we had all the water in the world we needed. In fact, we had too much. As we watched the west struggle to create water so they could have development and agriculture and growth, I think we took for granted our wonderful and abundant water resources.

I think we are beginning to find it is not the case that they are unlimited. They are limited. As we grow and develop, their importance to us is going to steadily increase.

Our wise and prudent utilization of those resources are going to be extremely important.

I want to thank you, Mr. Chairman, for the work you have done to see we work together across State lines to try to do what is best.

General, I think this study proposal you have, as best I understand it so far, is a good one. I also think it is important that the respective States continue their discussions and negotiations on reallocation, even while this study is underway.

The study, in part, is looking out as far as 50 years. Yet, we have decisions that are going to come to the decision point in the very near future certainly far short of completion of the study.

I would just like to ask you, is it your understanding that the States will continue to be involved in discussions and negotiations on reallocation while this study is underway?

General **Kelly**. Yes. As I related earlier, it is broken down in two phases. Hopefully, the first phase, we can have resolved here within the year.

That is, the immediate needs to meet ongoing requirements for the city of Atlanta. Continuation of those reallocation contracts from Carters Lake they now have handling the city of Chatsworth in the headwaters of the Alabama-Coosa River Basin and the city of Cartersville and Cobb and Marietta Counties for Lake Alatoona. That is ongoing. Hopefully we will have that resolved.

The intermediate area that has to do with the future reallocation up to the year 2010 for the city of Atlanta, has really got to be addressed by the States.

The problem can be addressed concurrently as we do our comprehensive studies.

Mr. **Thomas**. Well, let me say I think this will produce very useful information to all of us. I can think of a few things I would like to have incorporated into the study.

I, for one, am very interested in just what specific role our rivers play in aquifer recharge and how this process works. I don't think it is something we know a lot about.

Yet it is vital to those of us who draw from rechargeable aquifers.

SAVANNAH RIVER

I would also like to point out another major river that influences our State greatly. The Savannah River is a river which is greatly affected by our management of its waters, both from an environmental and economic standpoint.

I, myself, visited the flood plains in the lower areas and I see from my own personal love and commitment to those type properties that sometimes what we do is disruptive and sometimes not constructive to the health of the environment within our flood plain systems that are vital resources to us.

But I would just suggest that would be a very interesting river to study, and I think in the future, Mr. Chairman, we will be involved in very similar questions, and similar issues. With the Savannah River being the great resource that it is and being affected greatly by our operations, I would certainly like to see us consider including the Savannah River in some future studies so we better understand what we are doing there, as well.

I would like to bring back the matter to the attention of the subcommittee at the appropriate time.

WETLANDS RESEARCH

Thank you for your comments about this comprehensive study. I would like to go on a minute and touch with you on a question or two that came to mind and was also on the mind of my colleague, Mr. Fazio.

At running the risk of blowing my cover in not being the expert he has made me out to be, I will try to ask you a few questions about wetlands. I was quite struck with the size of that small wetland pothole that we were looking at in the slide, a field demonstration project.

You were talking about setting up field demonstrations. You were going to put them on a fast track. I am glad to hear that. We do have very pressing questions now arising throughout my area and much of the United States. I was called on by a friend from Houston who came to see me last week about his concern over the new manual on wetlands delineation and identification.

His comment was to the effect that about 85 percent of the properties that we were looking at for development in this area, according to this manual, will probably be declared wetlands and possibly be problem areas.

I know it is a problem throughout the country. Since you are on the fast track here, what portion of the $22 million you will spend on your studies will be committed to field demonstrations like you showed us there on the slide awhile ago?

General KELLEY. That study, of course, kicks off in Fiscal Year 1991. We are in the process of coordinating with our research directorate in laying out the exact objectives that you relate. But I would suggest that first of all, we have to understand what makes up the chemicals and the whole phenomena of what makes up wetlands.

We really do not have a good understanding of them. We have done some research in the past, but not to my satisfaction, we have not fully gotten that through.

The second thing and that gets into the field area, I think we are going to be putting in I would probably say at least 60 percent. That is into the understanding of the technology of creating and enhancing wetlands.

These are real keys. We think collectively we can do it. If we acquire the right knowledge, we can do it. There is some doubt and skepticism from the other Federal agencies that that can successfully be done.

This research program will address that point.

Mr. THOMAS. I think you are getting right into my main interests and concerns about wetlands here. I wonder if you could give me a little more specific answer about how much of the $22 million total for wetlands research might go into the field demonstration projects?

General KELLY. I estimate about 60 percent of it.

Mr. THOMAS. About 60 percent?

VALUE OF WETLANDS

Well, I concur with you. The problem to me is not so much a matter of how to identify and delineate a wetland. We can analyze hydric soils, hydrophytic plants, and hydrology. These things are quite discernible.

The question to me in the final analysis is what is the value of the wetland, what are its functions, how is it different and unique from other type wetlands?

Certainly there are different value scales on wetlands. I think we need to be determining this as we talk about a workable mitigation program, which leads to the question of marsh creation. I am as committed as anybody in this room to the "no net loss" concept.

I think we are putting our head in the sand if we think no wetland in that context or commitment will ever be compromised or encroached upon. That is not the real world. What we should be doing is pushing very hard to understand that if we do look at wetlands for possible alterations, the question should be not is it a wetland, but rather what is it doing? We need to know what it is doing in the water quality scheme, if it is a nesting sight for migratory water fowl, if it is the home of some possibly endangered species, and what it is doing for flood mitigation.

These are the kind of questions that will help us establish a value scale, which is the first step if we are going to properly manage and enhance wetlands and certainly the most important step if we are going to begin to talk about re-creation of wetlands.

BASELINE DATA

Let me leave you with one thought here. I think an excellent place for you to study and look at is Georgia. I don't know how much baseline data we have already. I know we have done work in Georgia, and have good experts, Dr. Odom at the University of Georgia, for example has studied wetlands for many years.

You will, of course, draw from the information they might already have which will cut down the time frame somewhat.

But I just think we really have our work cut out for us here. I think the sooner we embark on this process, the better off we will be.

If you will come to the southeast, you will find intact many areas of wetlands that simply have only one of the three criteria we use for establishing wetlands that has been affected.

That is the hydrology. With very shallow ditches we have drained water off of lands that had been standing for some long period of time in which clearly the predominance of vegetation is hydrophytic and the soil is hydric.

You have two of the components. All you have to do is turn to hydrology. For us to put our head in the sand and say we can't create wetland is just being nonsensical.

I think you have an ample opportunity down in the southeast to get some of our people, with the free market system footing the bill, underway towards re-creating wetlands by putting the water back. We can then study the quality of these wetlands as they regenerate all of their functions as we then utilize some of the areas that might have to out of necessity be compromised.

I would just say to you I am not here to tell you your business. But your laboratories are out there waiting on us. All we have to do is find a common sense way to approach it and get private industry and private land owners involved in that process.

That will provide base line data for you in a hurry.

General **Kelly**. I might point out in listening to your conversation with General Williams from our Lower Mississippi Valley Division last week, I had the opportunity to visit Savannah on Friday.

Colonel Lacursio showed me, not the specific spot you mentioned in the discussion with General Williams, but showed me the general problem you had. It is something we have to address. You are looking at what is the wetlands functions and values.

That we have to address in this particular R&D program.

Mr. **Thomas**. I certainly hope you will carry on with your work. Anyway I can help you, I certainly will.

I have an area greatly involved in this wetlands issue. It is a very significant question in the southeast.

Mr. Chairman, thank you for your time.

CONCLUSION

Mr. **Bevill**. Are there any other questions?

General, Thank you for your usual very fine presentation. I have some questions from Mr. Chapman for you to answer for the record.

[The information follows:]

QUESTIONS SUBMITTED FOR THE RECORD FROM MR. CHAPMAN

INFRASTRUCTURE

QUESTION. I would like to discuss the new special study on America's infrastructure included in this year's budget. First, I am pleased to see that the Administration has recognized the need for an integrated Federal policy to address our nation's infrastructure problems. I am supportive of such an initiative and I believe that the expertise of the Corps in project management and strategy development is necessary for such an effort to be successful. However, I have a few questions about how this fits into the mission of the Corps and how it will affect the focus of the Corps in the future. We have already seen the Corps moving away from recreation and water supply projects and the budget for projects within the Corps mission is very tight. Did the Corps request to do this study or was it the Administration's efforts that included this in the Corps budget request? (Who initiated this idea?)

ANSWER. This study request represents the collaborative thinking of the Corps and the Office of the Assistant Secretary of the Army for Civil Works (ASA(CW)). The ASA(CW) and the Corps seek opportunities by which the management and engineering talents of the Corps may be of even greater service to the Nation. The budget request to develop an integrated Federal infrastructure strategy responds to the challenges the Nation faces in managing its infrastructure.

QUESTION. Do you foresee the Corps becoming more involved in addressing our nation's many infrastructure needs? (In other words, is the Corps going to be doing a wide variety of infrastructure projects in the future or are they only going to be coordinating the efforts to address them?)

ANSWER. We believe the Corps has the expertise, experience and capability gained through its Civil Works, Military Programs and Support for Others missions to effectively address many of this Nation's infrastructure needs. No other organization has the planning, programming, designing and construction expertise, the operation and maintenance experience or the decision making and technical capabilities in as comprehensive array of infrastructure modes as the Corps. We will assist the Nation with its infrastructure needs in whatever way we are requested, consistent with our abilities and authorities and resources granted to us. The Corps efforts will recognize the appropriate program and implementation roles of other Federal agencies, State and local governments and the private sector. With regard to development of the Federal strategy, the Corps role at this time is one of catalyst and coordinator.

QUESTION. If so, how will this affect the Corps ability to fulfill its current mission -- both logistically and budget wise?

ANSWER. The Corps is very careful to insure that new assignments are only undertaken when they will not adversely affect missions already under way.

MAGNETIC LEVITATION TRANSPORTATION PILOT PROGRAM (MAGLEV)

Question. Following along the lines of transportation issues, I am also very interested in the Magnetic Levitation Transportation Pilot Program (MAGLEV). I understand the tentative allocation request to be $3.5 million through FY91 and Federal cost cannot be estimated after this time until cost sharing arrangement are made with the private sector.

Who do you envision the cost sharing partners to be on this project? For example, what area of the private sector will be involved with this program?

Answer. A number of different U.S. industries have expressed interest in the MAGLEV program. These include the aerospace companies that may become involved in vehicle design and manufacturing; large engineering and construction companies that could handle the design and construction of the guideways and support infrastructure; and various electronics firms that could provide the levitation, propulsion and guidance systems. These will likely be the primary cost sharing partners during the research and development phase of the program. As an advanced U.S. MAGLEV system moves closer toward commercial implementation, we expect the private sector interests associated with system operations and with real estate development will also become involved.

Question. Is there any idea about where this pilot program will be located?

Answer. At this early stage in the pilot program, no decisions have been made about where in the U.S. the first operational second-generation MAGLEV system would be located. Whether the first system should be a full-scale test facility, a short segment that would directly enter commercial service, or a short segment that serves for initial testing and then is integrated into a longer commercial route has also not been decided yet.

Question. Will there be a competitive bidding process for this program or how will the location be decided?

Answer. We do anticipate using some type of competitive bidding to select the location for the first operational second-generation MAGLEV system. Possibly this process could be similar to that used for the Superconducting Super Collider program. Whatever the selection process used, it is certain that a significant share of the costs will have to be borne by the industries involved in the manufacture of the system and by the state or region in which the first system is to be constructed.

Question. At what stage (when?) will efforts be made to identify the location of this pilot program?

Answer. The physical requirements for the site and identification of possible candidate sites should be available in FY 1992. This year represents a major decision point in the coordinated Federal effort on MAGLEV. At this time, we should have sufficient information in hand on the technological ability of U.S. industry to develop an advanced U.S. MAGLEV system, on the market potential for such a system both domestically and for export, and on the resources needed from the public and private sectors to develop this technology and leapfrog the foreign competition. If Congress and the Administration decide at that time to proceed with the final design and construction of a U.S. pilot program, then the actual competition for a site could begin in FY 1993.

Question. Is the Corps aware of existing private sector efforts in this regard and if so, do you plan to study what progress has been made and incorporate any findings into your study?

Answer. We are aware of the plans to implement MAGLEV in three locations in the U.S. during the next decade: Orlando, Florida; Pittsburgh, Pennsylvania; and between Southern California and Las Vegas. A number of other states and regions are considering implementation of either high speed rail or MAGLEV technologies. We fully support these efforts to implement MAGLEV systems in the near future, as there is much we can learn from their experiences, particularly relating to corridor selection,public acceptance and ridership, environmental impacts, real estate development and private financing. We plan to integrate these lessons learned into our program, and we will continue to coordinate with these state and regional commissions and others contemplating MAGLEV development in the U.S.

QUESTIONS FOR GENERAL SOBKE

Mr. **Bevill**. General, I have a number of additional questions I would like General Sobke of your South Pacific Division to answer for the record on projects in his area.

[The information follows:]

OCEANSIDE HARBOR, CA

Mr. BEVILL. Why has the completion date for preconstruction, engineering and design for the Oceanside Harbor, California, project slipped 8 months?

General SOBKE. Sir, the completion of our preconstruction, engineering and design work has been delayed to January 1992 for additional technical studies, including a detailed model study to assure optimum project design.

CALIENTE CREEK, CA

Mr. BEVILL. Why have no funds been requested to continue the Caliente Creek, California, PED project?

General SOBKE. Sir, during our review of the proposed project plan we discovered that sediment rates are significantly higher than were previously estimated and the proposed dam is not feasible. The Sacramento District is currently developing a schedule and cost estimate to resume the feasibility study to develop a new plan. A new feasibility cost-sharing agreement is required.

CACHE CREEK SETTLING BASIN, CA

Mr. BEVILL. Why has the completion date for Cache Creek Settling Basin, California, project slipped one year?

General SOBKE. Sir, the schedule has been delayed one year because the State of California could not initiate acquisition of required real estate for the project prior to the execution of the local cost-sharing agreement. The LCA could not be signed by the Corps until construction funds were appropriated this year.

OAKLAND HARBOR, CA

Mr. BEVILL. How will the funds requested for the Oakland Harbor, California, project be utilized? When will actual construction of the Oakland Harbor project begin?

General SOBKE. Sir, the Fiscal Year 1991 funds will be used to conduct ocean, in-bay and upland sediment studies; to continue environmental studies of the aquifers, fisheries and turbidity; to evaluate alternative disposal sites for material to be dredged from Oakland Harbor and to continue preparation of the General Design Memorandum. Our current schedule, subject of course to the identification of an acceptable disposal site, will allow construction to proceed in May 1992.

RICHMOND HARBOR, CA

Mr. BEVILL. What is the status of the Richmond Harbor, California, project?

General SOBKE. Sir, we intend to conduct sediment tests at Richmond Harbor this fiscal year. No funds are included in the Fiscal Year 1991 budget for continuation of the project. When additional funds are provided, we will resume the studies necessary to identify an acceptable disposal site, and prepare the Environmental Impact Statement and General Design Memorandum to ready the project for construction.

SACRAMENTO RIVER DEEP WATER SHIP CHANNEL, CA

Mr. BEVILL. Why was $1,992,000 reprogrammed from the Sacramento River Deep Water Ship Channel, California, project in Fiscal Year 1990?

General SOBKE. Sir, the funds were surplus to the project in Fiscal Year 1990 because delays in local construction of disposal areas made it necessary for us to delay scheduled construction of the second reach from the spring to August 1990. Overall project completion has not been affected.

CORTE MADERA CREEK, CA

Mr. BEVILL. How will the funds requested for the Corte Madera Creek, California, project be utilized?

General SOBKE. Sir, the requested funds will be used to prepare a Supplemental Design Memorandum and Environmental Impact Statement to recondition Units 2 and 3 and construct Unit 4 of the project. The remaining construction features have not been scheduled pending completion of the additional environmental documentation and execution of a local agreement.

SACRAMENTO RIVER BANK PROTECTION PROJECT, CA

Mr. BEVILL. Please explain why the Sacramento River Bank Protection Project has been rescheduled to delay completion by two years.

General SOBKE. Sir, the drought has reduced the rate of erosion along the Sacramento River and it is more prudent and cost-effective to construct the bank protection at a slower rate. Additionally, environmental considerations for the winter run salmon, the bank swallow and the Swainson's hawk have delayed some portions of project construction.

WALNUT CREEK, CA

Mr. BEVILL. Why are additional funds required in Fiscal Year 1991 for the Walnut Creek, California, project?

General SOBKE. Sir, the additional funds are required for completion of the final segment of the San Ramon Bypass Channel and Walnut Creek due to higher than anticipated bids, and other minor cost increases, including the addition of recreation trails. The entire project is scheduled to be completed in September 1991.

NEW MELONES LAKE, CA

Mr. BEVILL. What is the status of the construction of recreation facilities at the New Melones Lake, California, project?

General SOBKE. Sir, since 1982 we have spent $23.4 million to construct recreation facilities at full Federal expense. Remaining recreation facilities are not scheduled pending development of cost-sharing agreements with local interests for construction and non-Federal operation and maintenance, consistent with projects for which recreation facilities are being constructed under the provisions of the Federal Water Project Recreation Act of 1965, as amended.

GUADALUPE RIVER, CA

Mr. BEVILL. What are you doing to carry out the direction provided in House Report 101-96 related to the Guadalupe River, California, project?

General SOBKE. Sir, we are scheduled to initiate construction of the Guadalupe River project notwithstanding the maximum project cost limitations, as directed by the Energy and Water Development Appropriations Act, 1990, as well as the report.

SANTA ANA RIVER MAINSTEM, CA

Mr. BEVILL. Are you performing the water conservation reconnaissance study for the Santa Ana River Mainstem project described in House Report 101-96?

General SOBKE. Yes, Sir. The reconnaissance study is underway as directed. We will utilize $300,000 in Fiscal Year 1990 and $200,000 in Fiscal Year 1991 to complete the study in February 1991.

LAKE ELSINORE, CA

Mr. BEVILL. Are you proceeding with the Lake Elsinore, California, Section 205 project?

General SOBKE. Yes, Sir. We are currently conducting a cultural resources survey and are scheduled to complete plans and specifications for the project and initiate construction this year. The project is scheduled for completion in September 1991.

OCEANSIDE EXPERIMENTAL SAND BYPASS

Mr. BEVILL. What is the status of the Oceanside Experimental Sand Bypass, California, project?

General SOBKE. Sir, Phase I of the Oceanside Experimental Sand Bypass was completed in July 1989. Operation and evaluation of the North Fillet began in July 1989, and the entrance channel in August 1989. Funds available this year are being used to operate, maintain and monitor Phase I, and to continue the design of Phase II. Construction of Phase II will not be initiated pending Headquarters approval to proceed. A report to justify Phase II construction is scheduled to be submitted by the Los Angeles District to my office in March 1990.

QUESTIONS FOR MR. PAGE

Mr. BEVILL. General, at the February 6 hearing, I asked Mr. Page to provide for the record a list of projects that will be ready to proceed to construction in FY 1991. Recognizing it would take some time, Mr. Page indicated he would have you provide this list for the record of the Remaining Items hearing. Please provide this list at this time.

General KELLY. Yes, the list has been prepared and will be provided for the record.

(The information follows:)

CLOSING

Mr. **Bevill**. We now stand adjourned until ten o'clock tomorrow morning.

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PROJECTS AVAILABLE FOR INITIATION OF CONSTRUCTION IN FY 91

PROJECT	ESTIMATED FEDERAL COST 1/ $000	FY 91 BUDGET REQUEST $000	FY 91 CAPABILITY $000
DELEWARE RIVER IN VICINTIY OF CAMDEN, (BECKETT STREET TERMINAL), NJ	3,540	0	3,290
DULUTH SUPERIOR CHANNEL EXTENSION, MN & WI	7,786	0	1,000
MARSHALL, MN	5,480	0	900
FORT PIERCE HARBOR, FL	5,120	0	2,500
REDONDO BEACH (KING HARBOR), CA	5,135	0	4,350
ZINTEL CANYON DAM, WA	6,800	0	6,300

NOTE: ALTHOUGH PROJECT CAPABILITIES REFLECT THE READINESS OF THE WORK FOR ACCOMPLISHMENT, THEY ARE IN COMPETITION FOR AVAILABLE FUNDS AND MANPOWER ARMY-WIDE. IN THIS CONTEXT, THE CAPABILITY AMOUNTS SHOWN CONSIDER EACH PROJECT BY ITSELF WITHOUT REFERENCE TO THE REST OF THE PROGRAM. HOWEVER, IT IS EMPHASIZED THAT THE TOTAL AMOUNT PROPOSED FOR THE ARMY'S CIVIL WORKS PROGRAM IN THE PRESIDENT'S BUDGET IS THE APPROPRIATE AMOUNT CONSISTENT WITH THE ADMINISTRATION'S ASSESSMENT OF NATIONAL PRIORITIES FOR FEDERAL INVESTMENTS AND THE OBJECTIVES OF AVOIDING LARGE BUDGET DEFICITS AND THE SERIOUS ADVERSE EFFECT THAT GOVERNMENT BORROWING IS HAVING ON THE NATIONAL ECONOMY. IN ORDER TO MAINTAIN THESE OVERALL BUDGETARY OBJECTIVES, WE COULD ONLY UTILIZE ADDITIONAL FUNDS ON INDIVIDUAL PROJECTS IF OFFSETTING REDUCTIONS WERE TAKEN.

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